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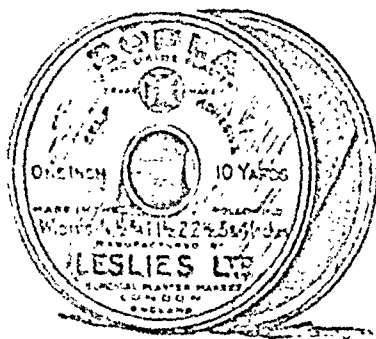
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F.R.C.P. LOND.LECTURE III.—WAR FLYING AT HIGH
ALTITUDES (continued).

Delivered on March 16th, 1920.

MR. PRESIDENT AND FELLOWS,—There still remain to be considered one or two points in connexion with high altitudes before we can pass on to the main subject of this lecture, the importance of the ear in aviation.

PHYSICAL FITNESS AND HIGH FLYING.

The bodily reactions which high flying entails are comparable in some respects to those with which we are familiar during muscular exertion at sea-level, their main object being to provide oxygen in quantities sufficient for the needs of the body. It was certainly our experience to find that those individuals who had long been accustomed to take vigorous exercise resisted the effects of altitude better than their more sedentary companions.

It can also be readily understood how utterly unsuited for high altitude work is the individual whose central nervous control has either never been properly developed or has been weakened as the result of strain and fatigue. The shallow breather whose ventilation is both inadequate and uneven¹ is already in an anoxic condition by reason of his breathing, while the individual whose pulse and arterial pressure are abnormally sensitive to exertion or excitement has no reserves to fall back upon.² The subject of the "effort syndrome" is, in fact, in much the same physical state in the hospital ward as is the healthy pilot at 20,000 ft.

THE CLINICAL EXAMINATION OF CANDIDATES.

Brief attention may here be made to the medical examination of candidates for the flying service, since one of the most important questions which the examiner has to decide is whether the candidate is fit for high flying. I have stated in a previous lecture that in my opinion it was inevitable that the standards devised by the Candidates Examination Board were productive of more criticism than those which they replaced. My reasons for thinking so are that something was being attempted which had not seriously been attempted before—viz., to standardise the normal individual, or even to pick out the superman. It would seem that we have no settled conception of what we mean by a normal individual, or else that the range of normality is so great as to permit of us having different conceptions.

It was found as a matter of experience that those who stood the stress of service well conformed to the standards of circulatory and respiratory fitness laid down by Plack.³ Their pulse-rates tended to be comparatively slow at rest, reacted quickly and effectively to changes of posture and to moderate exercise, and quickly returned to normal after response to exercise or emotion. On the respiratory side individuals with high vital capacity, low consumption of air per minute,⁴ a slow rate of breathing, power to hold the breath for over a minute, and good expiratory force demonstrated their suitability for work at high altitudes. The ability of an individual to sustain by an expiratory effort a column of mercury at 40 mm. for any length of time, though more difficult to interpret, involving as it does an obstacle to the return of venous blood to the heart, was, nevertheless, correlated with physical fitness and mental resolution. The performance of an individual subjected to these tests was appreciably diminished by anything which lowered his physical health, such as an attack of influenza, scabies,

&c. But the condition which more than any other was productive of an inability to pass these standards was that which we have already studied under the name of anxiety neurosis. When, therefore, we make use of these tests we must remember that the subject under examination possesses a cerebral cortex, and we must not be encouraged into talking too glibly about "cardio-vascular debility" and "respiratory weakness."

It has recently been shown⁵ that definite relationships exist between vital capacity and body surface, body weight, stem length or sitting height, and chest measurement; and it seems justifiable to hope that the results to be obtained by a wider application of these measurements and of the principles on which they depend will help us to a fuller and clearer understanding of what we mean by a normal individual.

TEMPERATURE.

The cold experienced at high altitudes is very great at all seasons of the year. On a hot day in July, when the thermometer on the ground may be registering 80° F., at 20,000 ft. it is at, or just below, zero, while in January at this height there are often more than 60° of frost.

It is well known that cold increases the O₂ intake and CO₂ output (but not the nitrogenous metabolism) by a reflex stimulation causing shivering and restlessness, and this action is reflected in the inclination to take exercise in cold weather.⁶ If, however, all movements are avoided no increase in the respiratory exchange takes place.⁷ The flying officer is handicapped in the air by his relative immobility, and the external cold tends to aggravate his anoxic condition. Incidentally, when individuals are experimentally subjected to low O₂ pressures they frequently complain of coldness of the extremities.⁸ The aim of clothing is, of course, to maintain a high and constant temperature between the body surface and the nearest layer of clothing, and there can be no doubt that the great improvements effected in this connexion during the war largely increased efficiency in the air. Difficulty must always be experienced in protecting the face and hands, the latter because heavy flying gloves have frequently to be discarded temporarily for the purpose of taking photographs, fighting a gun, clearing a jam, &c.; to touch metal at -30° F. with the unprotected hand must inevitably cause acute frost-bite. This difficulty was in some degree overcome by the wearing of electrically heated gloves. Pilots flying at high altitudes by withdrawing their heads momentarily from the protection afforded by the windscreen often secured in this way a welcome stimulation, the action of the rush of cold air being, no doubt, a reflex one from the skin of the face to the medullary and higher centres.⁹

The Effect of Altitude on the Ear.

Slight but temporary deafness after landing has long been a matter of common knowledge among aviators, and was usually attributed to the noise of the engine. This symptom, however, especially after the introduction of the fast scout machine, began to be frequently associated with discomfort or actual pain in the ear, more often unilateral, and a feeling of unsteadiness, both of which might persist for some hours, while in a few individuals the pain was so great that they had to discontinue flying altogether. It seemed probable that this condition was referable to a difference of air pressure on the two sides of the tympanic membrane. It was shown by Scott that inspection of the ear under these circumstances immediately after landing reveals a fundus bright red owing to engorgement of the vessels in the tympanic membrane, while in extreme cases the membrane is strongly invaginated into the tympanum and closely moulded over the ossicles. These changes are referable to the patency or otherwise of the Eustachian tubes. During ascent the rise of relative pressure in the tympanum is usually sufficient of itself to open the Eustachian tube and so to bring about equalisation of pressure on the two sides of the drum. During descent, on the other hand, especially if rapid, when the excess of pressure is on the outside of the drum equalisation can only be effected by some muscular action which will stretch the openings of the tubes and allow air to pass up. In the normal individual with patent Eustachian tubes this can be effected by repeated swallowing, a movement which is facilitated by keeping a piece of chewing-gum in the mouth and rendered difficult by the dryness of the throat which results from breathing the cold, dry air at great altitudes with the mouth open. It can also be effected by imitating the first part of the act of yawning, or by repeated auto-inflation of the ear by Valsalva's method. During a steep and prolonged "dive," at a speed of perhaps more than 200 m.p.h., equalisation of pressure may be impracticable. Owing to the shape of the curve of barometric pressure in relation to altitude this effect on the ear is greater when descending from

¹ Lectures I. and II. were published in THE LANCET of May 29th (p. 1147) and June 5th (p. 1205) respectively.
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10,000 ft. to ground level than it is from 20,000 to 10,000 ft. In individuals where there is definite Eustachian obstruction, whether due to a cold in the head or to some other cause, a descent of several thousand feet may cause not only pain in the ear on the affected side with pressure sensations in the head and deafness, but hæmorrhage may occur or even actual perforation of the drum. Airmen with large bilateral perforations are, of course, immune to these symptoms.

In cases of unilateral Eustachian obstruction, where an officer may have complained of actual vertigo while flying, and landed with unsteady gait, earache, headache, and nausea, Scott¹¹ has further observed nystagmus, forced movements, unnatural position of the head, and other disturbances of equilibrium. All these disturbances can be relieved by successful catheterisation of the obstructed tube. The condition is clearly related to differences of air-pressure in the ear on the two sides, with corresponding differences of endolymph pressure, and in consequence a divergence of information from the vestibular receptors of the two sides with resulting disturbances in consciousness. It is further possible that the profound and rapid changes of temperature experienced when flying may aggravate the condition by effecting a modified "caloric test" of unequal intensity on the two sides.

This regulation of pressure in the ear by means of the Eustachian tubes is by far the most important practical point connected with the ear in flying. Its importance, however, has been largely overshadowed in favour of the greater but more hypothetical interest aroused by the consideration of the internal ear as the organ of balance or of motion-sensing.

THE QUESTION OF BALANCE IN THE AIR.

Few who have ever flown can watch the graceful evolutions of a bird on the wing without wonder mingled with envy. Comparison between the bird and the distant aeroplane is irresistible, and knowing that the latter is controlled by a pilot, although we cannot see him, we instinctively ask ourselves, On what aspects of function do the seemingly bird-like qualities of the pilot depend? It has elsewhere¹² been stated that, "in order to preserve the wonderful accuracy necessary for controlling an aeroplane the pilot relies pre-eminently on his ear-balance sense." We must now investigate the correctness or otherwise of this view.

THE ANATOMY OF THE LABYRINTH.¹³

The internal ear consists of an auditory and a vestibular portion; it is only with the latter that we are concerned.

The membranous labyrinth lies slung in its bony counterpart, the osseous labyrinth, from which it is separated by a fluid called perilymph. It consists (a) of two membranous sacs, the utricle and saccule, which lie inside that portion of the labyrinth known as the vestibule; and (b) of three semicircular canals. These canals are set in the three planes of space; the external or horizontal canal in the horizontal plane, and the two vertical canals in the vertical plane and at right angles to one another. The latter are usually termed the posterior vertical and superior vertical canals, the posterior canal of one side lying in the same plane as the superior canal of the other, and vice versa. Each canal has a large or ampullated and a small extremity, both of them opening into the utricle. The small ends of the two vertical canals, however, coalesce before entering the utricle, which therefore has five openings. The swollen end, or ampulla, of each canal contains the crista acustica or crista ampullaris, an elevated ridge protruding into the lumen of the ampulla crescent-wise and lying at right angles to the axis of the canal. The crista constitutes the nerve end-organ, comprised of hair cells 20 μ in length, jutting out into the lumen of the ampulla, which like the other portions of the membranous labyrinth is filled with a fluid called endolymph. The fibres of the vestibular portion of the eighth cranial nerve end in arborisations round the hair-cells of the crista. The crista may be said to divide the canal into two portions, a short sinus portion toward the utricle, and a longer tubal portion comprising the rest of the canal. The utricle and saccule also contain two nerve end-organs, known as the macula of the utricle and the macula of the saccule respectively; these are histologically similar to the crista, except that instead of being raised they are flush with the surface, and the gelatinous membrane, or cupula, which overlies them contains a few small concretions of carbonate of lime, called the otoliths, which are not found in the cupula of the crista acustica.

EXPERIMENTAL PHYSIOLOGY OF THE LABYRINTH.

Flourens (1824-42)¹⁴ was the first to show by experiments, chiefly on pigeons, that destruction of the

vestibule and semicircular canals is followed by disturbances, not of hearing but of equilibrium. He further observed that the peculiar pendulum-like movements of the head in pigeons submitted to operation occurred in the plane of the canal transected, and was of opinion that the peculiar relation of the canals in the three planes of space was related in some way to their function. He concluded that—

"In the semicircular canals there is an agency which restrains and moderates muscular movements; the vertical canals moderate movements backwards and forwards, the external canals moderate movements from right to left, and from left to right."

These brilliant researches made little impression, and it was not until Menière in 1861 described disturbances of equilibrium as a symptom of internal ear lesions that their significance was appreciated.¹⁵ In 1870 Goltz¹⁶ confirmed Flourens' results, while Crum-Brown,¹⁷ Mach,¹⁸ Cyon,¹⁹ Breuer,²⁰ Ewald,²¹ and Lee²² made further classical contributions to our knowledge of the labyrinth. The interpretations of the results obtained by these different experimenters varied considerably, although the results themselves are fairly concordant. Both Mach and Crum-Brown, as a result of rotation experiments, concluded that man possesses a special sense of rotation, the peripheral sense-organ concerned being the semicircular canals. Breuer amplified this view and looked upon the semicircular canals as the organ for appreciation of rotational movements, while the macula of the utricle and saccule appreciate progressive movements. Cyon, again, advocated the view that the semicircular canals constitute the peripheral organ which subserves a sixth sense, the sense of space, on which are projected our additional space conceptions derived from eye, muscle, and skin.

Ewald (1892), a pupil of Goltz, was the first to provide experimental proof of the correctness of the assumption first put forward by Breuer, that the specific stimulus to the hair cells of the crista is afforded by the current of endolymph in the canals. By opening up one canal and connecting it with an air-pressure apparatus he demonstrated in pigeons that the movements of the head and eyes are always in the direction of the endolymph flow and in the plane of the stimulated canal. It is this discovery which has rendered possible the investigation of labyrinthine function in clinical medicine.

Ewald further demonstrated that in the horizontal canal a movement of the endolymph toward the utricle causes a reaction twice as strong as a movement away from it, whereas in the vertical canals the exact opposite is the case. This curious difference between the horizontal and vertical canals has no physical explanation, while its physiological significance is obscure. Ewald's discovery, however, that the strength of the reaction depends on the direction of movement of the endolymph in relation to the ampulla is of considerable physiological importance, since the ampulla of the two-paired canals which lie in the same plane are so arranged that particles moving in the same direction in the two canals move toward the ampulla of one and away from the ampulla of the other. It therefore follows that for rotation in any given direction and in any given plane the total reaction will be evoked as to two-thirds from one canal and as to one-third from the other (paired) canal. Flow towards the ampulla of the horizontal canal evokes its principal function, flow away from it its subordinate function. "Each horizontal canal," to quote Lee, "stands to the opposite one in the same functional relation as each vertical canal to the one diagonally opposite; in both cases the principal function of the one being of the same kind as the subordinate function of the other." The fact of a double function (principal and subordinate) necessitates the assumption of the existence in each crista of two functionally different kinds of nerve-ending, and we must further assume the presence of two different "patterns" of central connexions corresponding to the two kinds of functional discharge.

As regards the more primitive part of the membranous labyrinth, all vertebrates except mammals have three otolith organs on each side—the utricle, saccule, and lagena. These organs bear to one another the same spatial arrangements as the semicircular canals, the macula of the utricle lying in the same plane as the horizontal canal, that of the saccule in the plane of the superior, that of the lagena in the plane of the posterior canal. In mammals the lagena is developed into the auditory cochlea. It is evident that by reason of the structural arrangements of these organs the incidence of the weight of the otoliths on the hair cells of the macula must vary according to the position and movements of the head with reference to the line of gravity. A movement in a straight line will not produce any current in the semicircular canals, since the influence of the inertia in the two halves of each canal will be found to be equal and in opposite directions. But linear movements of the head at

The grosser error is to assume that when all six canals are well known the animal shows, in addition to its ability to maintain both sides the animal shows, a pressing inability to maintain a normal attitude not only of its head, but of the whole body. It is not true that the animal in bandages to prevent any attempt to move results in violent movements necessitating the wrapping of the animal in bandages to prevent injury. Pigeons with only one canal cut they recover completely in a few days; with two canals cut they recover completely, as far as walking is concerned, within a month, completely, as far as flying is concerned, within six months, but exhibit an unwillingness to stand for long periods, and cut a pigeon may recover permanently unable to fly struggling feed itself, but it remains permanently unable to fly for more than a few yards, and then only in a struggling fashion and a short distance above the ground.

It is to the Vienna school of otologists and in particular to Barany²⁴ that we owe the application to clinical medicine of the knowledge gained by the experimental method. Given (a) the position of the canals, (b) the direction of movement of the endolymph, and (c) the relation of this movement to the ampulla, we can by effecting movements of the endolymph investigate the responses from each canal, remembering Ewald's law, that the movements of the head and eyes are always in the direction of endolymph flow and in the plane of the direction of endolymph by which we can stimulate the canal canal.

rotation. Suppose, now, that an individual sitting in a chair, with the head 50° forward so as to put the two horizontal canals exactly in the horizontal plane, is rotated; the endolymph in the horizontal canals will be affected. At first, owing to its inertia, the endolymph will lag behind, as the rotation continues it will be up, and when rotation is suddenly stopped it will be carried along for a short time by its acquired momentum.

A. *Nystagmus*. The movements, considering first the ocular phenomena, the movements of the eyes which actually occur are to and fro movements, consisting of a slow and a rapid component. The slow component which is from excitation of the endolymph, and occurs therefore in the direction of the hair cells, the cristae, and is mediated by the vestibular nuclei. The quick component by the cerebellum. Somewhat similar centres, and is a slow component of the direction of nystagmus. Unfortunately it is also the index of rotation with head movements, so that the index of rotation with head movements is taken, that the individual is rotated with head movements to the right. When the head is rotated to the right, the eyes are rotated to the left, and the head is rotated to the right.

In addition to nystagmus two other phenomena can be evoked by deceleration after rotation—namely, vertigo and crossed movements.

B. Vertigo.
Rotatory vertigo manifests itself in certain definite planes. After rotation with the horizontal canals in the horizontal plane the vertigo is in the horizontal plane—i.e., there is a sensation of turning round and round, which is not

[illegible]

C. *Forced Movements.*
These phenomena are secondary to the vertigo and do not
It is because we feel we are rotating,
to the left—i.e., to the

These phenomena are secondary to the primary phenomenon of rotation. It is because we feel we are rotating, to the left—i.e., to the right—that we imagine the object to be. Falling may be regarded as a post-pointing of the entire body, and only occurs when the vertigo is in the frontal or sagittal plane. It has been demonstrated that these facts are not related to the vestibular system.

regarded as a part of the central aviation, we have demonstrated
occurs when flying these facts. 1. It has been demonstrated
Before appearing them as follows: 1. The semicircular canal system is
summarizing that the semicircular canal system is
experimentally that the semicircular canal system is
space, a function strongly suggested by its anatomical
structure. The appearance of the vestibular labyrinth
must be regarded as part of the great afferent system which
renders coordinated movement possible. Other means of
excitation introduced by Barany help us to establish the
functional integrity or otherwise of the vestibular labyrinth
and its central connexions.

THE RESEMBLANCE BETWEEN A BIRD

Returning to our opening analogy, it can be seen that the resemblance is artificial. The bird flies itself, its deep receptive field constantly stimulated by the movement of the animal, and its cutaneous field freely open to excitation from the environment. The pilot flies a machine, more or less immobilised, with his cutaneous field to a great extent cut off from the environment by the clothing necessary for maintaining his body warmth. He obtains, however, valuable information from the "feel of his joy-stick," just as we by experience can feel a piece of dead bone at the end of a probe.

But we have been further advised that "to realise the importance of the ear in flying it is only necessary to consider a bird flying in a cloud"—i.e., deprived of its sight. We are first thinking of ordinary circumstances, and are asked to consider under degree of visual acuity. The quite remarkable degree of visual acuity never accorded by birds, especially by the presence or absence of possession of condor, vulture, etc.) is proverbial, and the habits of birds are peculiarly controlled by the possession of a dark night of daylight; is nocturnal or seemingly complete absence of adapted eye is struck by the. On such a day in winter the gulls have on a foggy day. Westminster birds following in birds not seeking food to the water, while sea-birds following in speak, anchored or towed into a sea-mist. It is not here the wake of a steamer clouded into a sea-mist. It is not here immediately that a bird deprived of vision is handicapped as suggested that a bird deprived of vision is handicapped that regards equilibrium that it cannot fly. The assumption under these circumstances it does not fly. The assumption that a bird can fly, relying exclusively on information

derived from its labyrinth, remains an assumption. The flight of a bird is a highly coördinated activity, and after destruction of both labyrinths the degree of coördination necessary for flight is no longer possible. In other words, the results obtained by experiment are not evidence for the opinion that the labyrinth is the organ of equilibrium, but merely that it is an organ of equilibrium; or to borrow and transpose a phrase used by Dr. Hughlings Jackson: "To locate the damage which destroys equilibrium and to localise equilibrium are two different things."²⁶

THE AFFERENT EQUIPMENT OF THE PILOT.

The ability of man to fly by night has been one of the main arguments adduced by those who contend that labyrinthine impressions are capable, almost unaided, of endowing the pilot with a "sense of position" in the air.

All flying officers, however, are unanimous in stating that at night "you have to see something." They maintain their position relative to the earth by means of a horizon—either the true horizon, or more often a false one between mist and sky, or by means of the moon or stars. Flying in pitch darkness is impossible, and by daylight in a cloud or fog all sense of position relative to the earth is lost, and one is apt to emerge from a cloud upside down, held in the machine by centrifugal force.

To get some idea of one's dependence on vision it is only necessary to fly as a passenger with bandaged eyes. In this connexion two points in particular are interesting. In the first place, I found I could appreciate with fair accuracy all movements with which I was familiar; that is to say, having recognised an initial change in direction, the end-result could be anticipated and correctly appreciated. But if evolutions took place with which I was totally unfamiliar, my loss of direction and position was complete.²⁷ Secondly, deprived of vision one instinctively seeks for other sources of information, which under ordinary circumstances pass unnoticed. These were, in the order in which they impressed me (I make no attempt to assess numerically their physiological significance): (a) auditory, the changes in note of the engine, the singing of the air through the bracing-wires; (b) cutaneous, air currents and sensations of warmth and cold on the two sides of the face, sensations produced by air currents under different parts of the clothing; and (c) pressure on the buttocks and soles of the feet.²⁸

More recent tests carried out in Canada in which the pilot was blindfolded revealed his helplessness; unable to allow for the "torque" of the machine he flew in the arc of a large circle.²⁹

VISION AS AN IMPORTANT FACTOR.

In reviewing, then, the afferent equipment of the pilot we are justified in placing vision in the forefront. It is by sight that he keeps a level antero-posterior plane by noting the position of the horizon relative to the radiator-cap, and by sight that he maintains lateral stability by noting the position of the wing-tips relative to the horizon.

But besides vision many other afferent impulses are doubtless involved, although several fail to pass the threshold of consciousness. To attempt to assess their individual worth in mathematical terms would appear as futile an undertaking as an attempt to give a numerical value to the importance of the tactile sensibility of the feet for walking. For success in flying or walking we primarily depend on those educative processes which we call experience.

The exaggerated influence claimed for the labyrinth is contradicted by the evidence supplied by deaf-mutes, since these individuals, with physiologically "dead" labyrinths, "can run and ride, dance and turn, hop and jump, and, presumably, could learn to fly."³⁰ It is only when we can partially suppress their visual and cutaneous sensations, as by immersing them under water; in other words, when we can approximate the conditions to those in which the labyrinth was originally developed—viz., the conditions of an organism exhibiting free motility in a fluid medium, that the deaf-mute behaves abnormally and loses all sense of direction.³¹

By blindfolding deaf-mutes and taking them up in the air attempts have been made³² to demonstrate that without the aid of vision they have no "motion-sensing" perception. A careful scrutiny of the results of these experiments shows, indeed, that their ability to appreciate the direction of movement of the aeroplane is less than that possessed by normal blindfolded individuals. Such a result would be expected, since nobody can justifiably contend that the labyrinth of man is a vestigial organ with no useful function to perform. The adaptability of man, however, is one of his most characteristic features, and under ordinary conditions the deaf-mute can compensate for the absence of labyrinthine impulses; even in the experiments alluded to there is evidence that his ability to detect both the direction and extent of movement improved with experience. On the

other hand, it is pertinent to observe that if we deprive a normal individual of his sight we at the same time gravely impair the utility of the labyrinth, for this organ controls the position of the retina in such a way that they conform to a plan with which experience has taught us to be familiar (v. infra). Moreover, it would appear in the highest degree improbable that an organ phylogenetically as old as the labyrinth should, so to speak, have had to wait for the advent of the aeroplane before the full extent of its utility could be demonstrated.

THE QUESTION OF VERTIGO.

It was a matter of everyday experience to come across officers who complained of giddiness while flying, and not unnaturally the part played by the internal ear in the production of this symptom was investigated.

The occurrence of vertigo as a result of labyrinthine excitation would appear to have been an obstacle to the proper conception of the functions of this organ. "Why look for a specialised organ," asks Cyon, "which would have the curious object of producing vertigo? Vertigo is a pathological phenomenon."³³ Rotatory vertigo, by which is meant a sensation of objects rotating in a certain direction, or of the body rotating in a certain direction, can be produced by disease, or in normal individuals by excessive excitation. Now the tests advocated by Barany help us to ascertain whether the vestibular paths are intact by noting the nature of the response elicited after excitation of each individual canal; at the same time it is absolutely essential to remember that the excitation employed, and the reactions consequently evoked, are altogether in excess of what is physiological. The crudeness of the method in no way interferes with its utility in disease, although were we to employ similar methods for testing other forms of sensation we should estimate the sense of touch by pinching and that of pain by torture.

But vertigo and its allied conditions, with their accompanying motor phenomena, can be elicited by means other than violent disturbances of the endolymph. It can be evoked by watching a rapidly moving object, as by looking at a waterfall, sitting in a room the walls of which are made to rotate, looking out of the window of a moving train, by producing an artificial strabismus, by moving about with the head in an unnatural attitude, and so on. A pigeon, for example, with its head tied down to its body becomes nearly as ataxic as one deprived of its labyrinth.³⁴ Vertigo, in fact, is an illusion due to disharmony of sensation. As a result of experience we have learnt to correlate the position of external objects and the position of ourselves with certain definite positions of the head and eyes. The picture of the external world is familiar to me in the erect position; if, however, I view it with my head between my legs I am presented with a picture which is unfamiliar, and my judgment of the distance from me of objects becomes erroneous. In a normal state of things the "visual and other sensory impulses (auditory, tactile, proprioceptive) which go to make up the coördinating machinery are, with reference to the events in the external world which are giving rise to them, in accord with each other. If, however, these impulses are not in accord, if I receive information from one source which is contradicted by that received from another, my brain will not know which to believe, and trying to believe both I shall be in a dilemma. The simplest example of this is that produced by artificially altering the position of one eye³⁵; impressions from the retina and ocular muscles fail to correspond, and to quote Hughlings Jackson,³⁶ "the eyes tell lies to the feet; they see things in places where the feet fail to find them." The converse is also true. Thus the deaf-mute, no matter how violently he is rotated, experiences no vertigo or disturbance of equilibrium; there being no response from his labyrinth, there is no disharmony of impulses and no dilemma. We must also recognise that violent stimulation in any one field may evoke such a violent response from that field that the coördinating centres fail to tone it down to conform with the impulses originating in other receptive systems, and the resulting state of consciousness will be one of dilemma. Illusions of movement can therefore be evoked by altering the relative intensity of the stimulus in different parts of the field.

ILLUSIONS.

These considerations are made use of by the producers of popular illusions. One such illusion seems especially instructive. The subject is blindfolded and stands on a board of convenient size laid on the floor. One of his hands rests throughout the experiment on the head of an individual standing immediately in front of him. The board is then gradually lifted by four conspirators two or three inches from the floor, while the individual in front gradually lowers himself on to his haunches. The victim now feels as if he

¹ Cf. Sherrington for discussion of degree of potency of stimulus in lower level reflexes.³⁴

were slowly but surely being lifted up to the ceiling, and when told to jump down, having planned a jump of several feet which in reality is only one of two or three inches, his feet find the floor before he expects it, and he falls to the ground. This illusion seems to show that in default of vision the almost complete absence of stimulation of the vestibular organ is not interpreted in consciousness as absence of movement in face of the stream of impulses from the musculo-cutaneous field, which so strongly suggest the existence of movement, and are, in fact, so interpreted. The illusion, moreover, can be almost entirely abolished if the outlooker task. Under these circumstances the ill-fated subject correlates his position in space with the nearness of the voices.

Ocular vertigo, such as is evoked by looking at a waterfall, &c., is presumably dependent on movements of the eyes and the consequent displacement of the retinal pictures while the body remains stationary. That identical effects can be produced by such diverse peripheral excitation, as is involved in watching a moving object on the one hand, and in passive rotation on the other, appears at first sight remarkable. It finds its explanation, however, in the close interdependence between the oculo-motor apparatus and the labyrinth and the close central connexions existing between the two systems; to both there is available a "final common path."

THE OCCURRENCE OF LABYRINTHINE VERTIGO DURING FLIGHT.

Can the movements of an aeroplane be rendered sufficiently violent to evoke disturbances of equilibrium such as are evolved in the rotation chair? This question can only satisfactorily be answered by the combination of two experimental methods.

In the first it is necessary to determine the angular acceleration necessary to produce in any individual disturbances of equilibrium, and having done this to determine the angular acceleration possible in an aeroplane. My technical knowledge is far too meagre to permit of my attacking this problem, and the only contribution which I will venture is that no aeroplane can rotate so rapidly and through so small a circle as does the chair when used in the ordinary way for testing vestibular reactions. Another but far less exact method is to observe what happens to oneself in the air. In some observations which I was able to make through the kindness of several flying friends, some of which have already been referred to elsewhere,²² the following points were revealed. One is bewildered at first by a series of startling sensations which, owing to their novelty, are unintelligible. To look over the side of the machine to see the countryside rising up at one, or to look down only to find the sun are experiences which render accurate observation difficult. Nevertheless in those early days I was never aware of rotatory vertigo; I was merely "lost." When, however, one had learnt to recognise the initial stages of each manoeuvre and could therefore anticipate intelligently, the apparent movements of the external world rapidly began to correlate themselves with movements of the machine, and one finally began to look to these apparent movements for information.

The following general conclusions were arrived at: (1) That the power to orientate oneself, except in a "spin," is largely a matter of correctly interpreting the apparent movement of earth, clouds, sea, and sun; (2) that this interpretation is entirely a matter of experience; (3) that it is assisted, to what extent it is impossible to say, by auditory and tactile impressions and by changes in bodily attitude; (4) that during a "spin" provided the gaze is fixed on the ground below (or less preferably on the instrument board), there is no vertigo and no forced movement; (5) that, immediately on coming out of a "spin," or even a "loop," "dive," &c., it is possible to identify a momentary disturbance of equilibrium as evidenced by a curious feeling of insecurity and vagueness; and (6) lastly, that vertigo can which is moving, or appears to be moving, faster than oneself, such as the wing-tip, the tail, or the instrument board.

These rough observations relate to one individual only and may therefore be constitutional, but their general applicability is supported by the fact that the great majority of pilots (a) have learnt without being told to look at the wing-tip or ground; (b) do get dizzy if they look at the instrument board; (c) are sometimes aware that the termination of any manoeuvre involving rotation is the time when they are apt to feel "queer"; and (d) do derive much useful information from the apparent movements of the external world.

These considerations lead us to the conclusion that the labyrinthine stimulation produced by evolutions in the air in the majority of healthy young men is not of sufficient intensity to evoke disturbances of equilibrium such as are induced by the rotation chair. This conclusion is corroborated by the practically unanimous statement of the

experienced pilots examined that the effects produced by the chair far exceed, and are dissimilar in character to, the effects produced in the air.

Labyrinthine and Ocular Vertigo Contrasted.

On the other hand, a bright sunny day, a clear atmosphere, an aeroplane, and a skilful pilot are the materials par excellence for the production of ocular vertigo. The knock-out blow which concusses the labyrinth and "reduces a vigorous athlete to an unstrung bulk of flesh"²³ is not very dissimilar in its effects to sitting in a fast-spinning aeroplane facing and watching the tail, for under such conditions one may be reduced to a strictly comparable condition.

In this suggesting that vertigo of ocular origin is to be expected during aerial acrobatics, and vertigo of labyrinthine origin immediately after their termination, we are doing no more than applying the ascertained fact that endolymph movement relative to the canal, and therefore excitation of the crista ampullaris, is non-existent during rotation provided the motion is smooth, but at its maximum when rotation is suddenly stopped—i.e., on deceleration of the chair or on coming out of a "spin."

It is evident that were labyrinthine vertigo produced in the air with the same facility as it is in the chair pilot would be helpless in its presence. It is not improbable, as Scott was the first to point out, that the brief period of time when the machine has straightened out from some rotary evolution is the critical point; at this point, as we have seen, consciousness may be momentarily damped, and in a quick scent machine which goes easily into a spin, a pilot, especially if he is inexperienced, either from lowering of attention or even as a result of actual "forced movement," may throw the machine into a spin in the opposite direction with a fatal result. "Vertigo involves a slight interference with consciousness, since an exact appreciation of the relation of the body to its surroundings is involved in the state called consciousness."²⁴

It is well known that stimulation of any of the canals in the horizontal plane is more readily borne than their stimulation in either the frontal or sagittal plane; rapid turning movements of the head are, for example, less disturbing than rapid nodding movements. During a "spin" with the head in the ordinary position and the gaze fixed on the ground the rotation is in the frontal plane, which is parallel to the earth; but when the machine comes out of the spin (i.e., deceleration) and flies on a level keel, supposing the attitude of the head relative to the machine remains unaltered, the frontal plane becomes at right angles to the ground and the vertigo, if any, will be experienced in the frontal plane, giving a sensation of falling to right or left. This probably explains the moment of uncertainty above alluded to, and some pilots have discovered for themselves that it is preferable to keep the head down on coming out of a "spin," so that the position of the frontal plane remains unaltered—i.e., parallel to the ground. It is not certain, however, that the benefit derived from looking at the ground is wholly attributable to the accompanying position of the head, and I would suggest that is partly a device for avoiding ocular vertigo. Provided one is two or three thousand feet above the ground, the earth looks homogeneous, there is no sharp detail, and it can therefore easily be fixed with the eye. Now it is well known that vertigo after rotation in the chair can be materially cut short by fixing the gaze.²⁵ I have, further, recently observed on myself that a point on the ceiling is fixed through a roll of paper held close to the eye during rotation in the chair with the head thrown back 120° the disturbances of equilibrium when rotation is stopped, usually very severe, are very materially diminished.

VARYING TYPES OF REACTION TO LABYRINTHINE EXCITATION.

Individuals vary greatly in the intensity of the reaction evoked by excitation of the vestibular system. Some cannot dance, swing, or go on a switchback; some of us are good, some are bad, sailors.

The striking feature of the reaction in such susceptible individuals is the loss of "real sign"; it is not a pure labyrinthine over-response (sympathetic, vertigo, forced movements), but rather a replacement of the typical response by another characterised by nausea, vomiting, pallor, collapse, and fall of blood pressure. In these cases, although the peripheral end-organ is free from disease, impulses originating in it irradiate widely and overflow with peculiar facility into other systems. Of these systems the motor part which originate in the nucleus ambiguus are easily the most prominent. This tendency to overflow is a constitutional peculiarity in many normal individuals, who in other directions show no evidence whatever of lack of central control or of inhibition. In others, however, it may occur when the mental and physical health is disturbed from whatever cause. In states of regression it is especially

common,²² and vomiting in the air in a flying officer who had never previously experienced it was in France the signal for his being ordered a rest.

THE "SENSITIVENESS" OF THE LABYRINTH.

On the assumption that a pilot is primarily dependent on the functional efficiency of his vestibular apparatus, it was natural to take steps to discover whether his response to excitation was normal, excessive, or deficient. On admittedly hypothetical grounds a standard response was laid down for aviation candidates in the United States.

After ten turns in 20 seconds with the head 30° forwards, clockwise and counter clockwise, a horizontal nystagmus of between 16 and 36 seconds' duration and one past-pointing with each arm were accepted as normal. Candidates with less than 16 seconds' nystagmus were supposed to be deficient in "motion-sensing acuity," while those with more than 36 seconds were termed "hyper-sensitive." Out of many thousands of candidates examined only 2.0 per cent. were disqualified on these tests—i.e., about one-fiftieth of all those rejected—the vast majority of rejections being due to errors of vision.²³

The average duration of nystagmus of all the candidates examined was 23.5 seconds after turning to the right and 23.2 seconds after turning to the left. Of those who showed less than 16 seconds' after-nystagmus, the average duration was 12.4 seconds both to right and left; of those who showed more than 36 seconds the average was 50.2 seconds after turning to the right and 48.0 seconds after turning to the left. The average number of past-pointings of all candidates was with the right arm after turning to the right and left 3.9, with the left arm 3.8.

The view that these simple tests are capable of indicating the functional integrity or otherwise of a portion of the vestibulo-cerebellar system is disputed by no one, nor can the arbitrary setting of the standards laid down be condemned from the point of view of practical policy. Whether, however, we are justified in asserting that an individual with less than 16 seconds' after-nystagmus is deficient in labyrinthine sensitivity, or that one with more than 36 seconds is the possessor of a hypersensitive labyrinth, is an entirely different proposition. It has, in fact, been shown that war pilots in the summer of their flying careers may exhibit reactions far in excess of the average.¹⁰ As has already been pointed out, to test the degree of sensitivity of an organ by employing a stimulus far in excess of what is physiological is a curious method of procedure, but to draw far-reaching deductions therefrom is frankly unscientific. "The only scientific way of comparing degrees of sensitiveness of the vestibulo-cerebellar system is to obtain the minimal angular acceleration necessary to produce consciousness of rotation, or the minimal angle of tilt recognisable in consciousness." (Scott.)

It was hoped at one time by the employment of these tests to eliminate those individuals whose response to labyrinthine excitation was of the "vagus variety." It was thought that the individual who was prone to sea-sickness and disliked dancing and swinging would be likely to suffer from nausea and sickness in the air. Our expectations in this direction were not completely fulfilled. In response to the "chair" tests there was observed a frequent lack of correlation between the subjective and objective effects; an individual, for example, might show very slight forced movements and a short nystagmus period and yet suffer intense giddiness, with nausea, vomiting, and circulatory collapse. As a matter of experience, I have not yet met a pilot who is sick in the air and is a good sailor, but I know of hundreds who have never felt sick in the air who always have been, and no doubt still are, atrocious sailors. Hence a history of sea-sickness in assessing a candidate's suitability for flying must be viewed dispassionately. It would seem that the specific character of the stimulus, to estimate which our present methods are inadequate, plays a part. How else can we explain a case such as the following?

Captain Z., M.C., a dreadful sailor, waltzing makes him sick and swinging makes him giddy; nevertheless, he can throw a fast scout machine about in the air without the slightest hesitation or discomfort, and was twice decorated for successful gallantry in combats with enemy machines. After turning in the chair his nystagmus period was 18 seconds to the right and left, he showed violent forced movements, but experienced no visceral discomfort whatever.

To summarise, therefore, it is admitted that the rotation tests satisfactorily demonstrate the functional integrity of the vestibular system and its central connexions. Further, they may be useful in revealing not a vestibular system which over-responds, but rather a central nervous system in which impulses originating in the labyrinth are imperfectly controlled; but imperfect control in the chair is not necessarily associated with imperfect control in the air.

SUMMARY.

I have attempted to indicate that the art of flying, as regards the sensory-motor coordination involved, is an art which may be acquired by any healthy individual like other accomplishments, such as playing games or playing the organ, and that the ability to fly depends primarily on the wonderful adaptability of the human organism. This adaptability, again, is the immediate result of the ability of man to project his powers of appreciation and to benefit by experience. Just as it is impossible to gauge in mathematical terms the extent to which the various afferent and efferent systems participate in securing the perfect harmony necessary for carrying out the intricate evolutions of everyday life, so is it both unprofitable and unsound to indulge in similar speculations in regard to the art of flying. We must rest content in the knowledge that the human machine is so perfected as to permit of its carrying out the necessary coordinations. It would, moreover, be a grave mistake to suppose that the function subserved by any organ or group of organs has a significance under the artificial conditions of flight other than that which it has in life on the ground. Such a distinction has, however, been advanced in the case of the vestibular system, and it is therefore necessary to have a clear conception of its functions under natural conditions.

The conception of the labyrinth advocated by Cyon as the peripheral organ of the sense of space has never found acceptance with the main body of physiological opinion; it fails, moreover, to stand the test of experiment in the air. Moreover, it is highly improbable that an organ so peculiarly adapted by its anatomical structure to respond to stimuli arising exclusively within the body should be capable of subserving so projected an aspect of sensation as is involved by the term "the sense of space." On the other hand, anatomy and physiology combine in demonstrating that the labyrinth can and does appreciate movements in the three planes of space. In man and the higher vertebrates generally the only part of the body which is capable of movement in three planes is the head, and it is reasonable to conclude that the labyrinth is affected essentially by head movements, whether such movements be confined to the head or be part of a total movement of the individual. The range of these movements is strictly limited, of the head alone by the structure of the vertebral and occipito-atlantal joints, and of the body as a whole by its general structure and its ordinary physiological activities. The speed and range of these movements may, however, be artificially increased, and the excitation of the labyrinth thereby evoked will be correspondingly greater. The whirling dancer induces as severe an excitation of his semicircular canals as does Barany's chair, and with the same results except that by practice he has learnt to antagonise the effects of the reaction. That he is paid to whirl is surely evidence that his activities border on the unnatural. The point, however, to be insisted on is that rapid and continuous rotation in man can only be effected artificially, and that however produced it constitutes a violent stimulus and evokes a violent response.

The labyrinth, then, appreciates and so helps to modify and control the movements, and also the position, of the head, and, since the head is the leading segment, as a secondary effect it modifies and controls the movements and attitude of the rest of the body. Further, in the head end of the animal are placed the great distance-receptors, the eyes, "set movably in the head,"²⁴ and it is by reason of its ability to recognise movements of the head that the labyrinth is able reflexly to effect corresponding movements of the eyes. The control of the oculo-motor muscles lies largely with the labyrinth.²⁵

The function of the visual apparatus as a means of projecting his sensations into the environment has been developed in man to its culminating point, and it cannot be a matter for surprise that receptors subserving sensations with little, if any, projected quality come to be subordinate, so to speak, to those in which this quality is more in evidence. Impulses originating in the labyrinth reach, but hardly pass, the threshold of consciousness, or at least we cannot identify their individual presence as we can those of sight, sound, &c.; they are merely a wave in the great sea of impressions which together make up the state of consciousness. In this light they must be studied, not in isolation but in co-operation. It is especially through the close co-operation of the labyrinth, the proprioceptor of the head,²⁶ with the visual

²⁴ By this I intend a comparison between the ordinary physical activities of man as opposed to those of the Japanese spinning mouse or tumbler-pigeon.

apparatus, the great distance-receptor of the head, that the functions of the labyrinth derive so much of their importance in human physiology.

"The function of the labyrinth is to keep the world right side up for the organism by keeping the organism right side up for the world." This statement is peculiarly apposite in the case of those who exploit the air, since it is by reason of the pre-eminent influence of visual sensations and the necessity for their accurate for the pilot. We can, therefore, gains its true significance for the organism, which science rest content in the knowledge that our conceptions of labyrinthine activity during flight harmonise with those broad conceptions of the activities of the nervous system in general, and of the labyrinth in particular, which science owes to the brilliant researches of Sherrington and his even more brilliant interpretations.

CONCLUSION.

In these lectures an attempt has been made to portray the mental and bodily mechanisms by which the healthy organism strives with varying success to counteract the abnormalities of its surroundings. It is difficult to avoid the conviction that were we to adopt a somewhat similar attitude in studying the functional reactions of the organism to abnormal processes arising not from without but from within itself—viz., the processes of disease—we should realise more than we do now that some at least of these reactions are not merely consequential and noxious but rather compensatory and beneficial. It would, further, appear that some such attitude is likely to foster a closer working alliance between the science of medicine and the more exact sciences on which it is founded, an essential preliminary to the advancement of medical thought and consequently of medical practice.

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RESEARCHES ON THE TREATMENT OF BENIGN TERTIAN FEVER.

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The results obtained with the help of my co-workers, Dr. Dagmar Curjel, V.M.S., and Assistant Surgeon J. O. Dowe, I.M.D., whilst I was in charge of the Malariar Research Laboratory, Dagghal, appear to me likely to lead to important advances in the treatment of these fevers. Hitherto the treatment of malaria was summed up in one word, "quinine," and the only points at dispute were the methods of administration and the length of time this alkaloid should be taken. The other alkaloids of cinchona bark have been used by numerous observers, but as far as I am aware have never been accurately tested. MacGillchrist (1915), who made the most systematic trial hitherto recorded of these alkaloids, was unfortunate in having to test them under conditions where reinfections could not be excluded and where the cases could not be observed sufficiently long to exclude all the relapses. The universal belief that quinine is equally a specific for all types of malarial fever will have to be abandoned before any material advance can be made in the treatment of these fevers. Malarial fever should be regarded not as one disease, but a group of three different parasites, due, as is already known, to three distinct alkaloids of cinchona bark for these requiring different alkaloids of cinchona bark for their treatment. After making such a dogmatic statement, I will first explain how quinine came to be regarded as a specific for all three types of malarial fever.

Quinine invariably exerts an immediate effect on all three types of malarial infection, causing a rapid amelioration in symptoms and disappearance of the asexual parasites from the peripheral blood. The annihilation of every asexual parasite is the only test by which one can truly estimate the action of these alkaloids. From the present statistical evidence it is almost impossible to estimate the degree to which this complete cure or sterilisation has been attained, as the figures are markedly influenced by one or more of the following factors:—

- (1) In the tropics quinine has to be administered under such circumstances as—viz., under epidemic conditions—where reinfections may occur as soon as the quinine is withheld. This effect may give rise to too unfavourable an impression as regards the cure-rate.
- (2) Cases are often not observed much longer than the duration of treatment. Many of the relapses are not seen by the same medical officer, and in this way too favourable a clinical impression is created as regards the curative value.
- (3) The microscope is not sufficiently employed. Fevers are often diagnosed as "malaria" from symptoms only, and malignant tertian infections from the presence of pernicious symptoms.

In spite of these factors, which may cause an unduly favourable or unfavourable estimate of the sterilisation-rate, there is a general clinical impression that in these three fevers relapse after quinine treatment, then benign tertians, and malignant tertians least frequently of all. This corresponds to our own experience, that the cure-rate is 90 per cent. in benign tertians, 20 to 30 per cent. in malignant tertians, and under 20 per cent. in quartan infections.

The Test of a Cure.

Many of the previous workers on the action of the cinchona alkaloids were compelled to work under unfavourable conditions. Stephens and his co-workers had to a large extent laid down the conditions that were necessary for the test of a cure. We were more fortunate in treating British troops under our immediate command, where every detail could be followed in the treatment. Every one of our recorded cases remained for two months or longer under observation after completion of treatment. The adverse factors already mentioned did not affect our figures, as they could be prevented by—

- (1) The exclusion of reinfections amongst our cases during treatment and observation. Dagghal is situated on

At the Crystal Palace on June 19th, 22nd, 24th, and 26th the Handel Festival will be held, we understand, on a larger scale than ever.

an isolated hill-top at 6000 feet above sea-level; there are very few sites suitable for breeding-places for the anophelines, and the temperature conditions are, for the greater part of the year, unfavourable for the fertilisation of the female gamete.

(2) Every case recorded as a cure was observed for at least two months, sometimes longer. This observation time-limit, first suggested by Stephens, was tested by plotting every parasitic relapse that occurred amongst our benign tertian cases. These relapses numbered 978, and are shown in the following table.

Table I. shows the frequency distribution of 978 parasitic relapses, all due to the benign tertian parasite, which occurred during and after treatment, and are shown in intervals of weeks.

TABLE I.

(A) Interval of weeks. (B) Number of relapses.

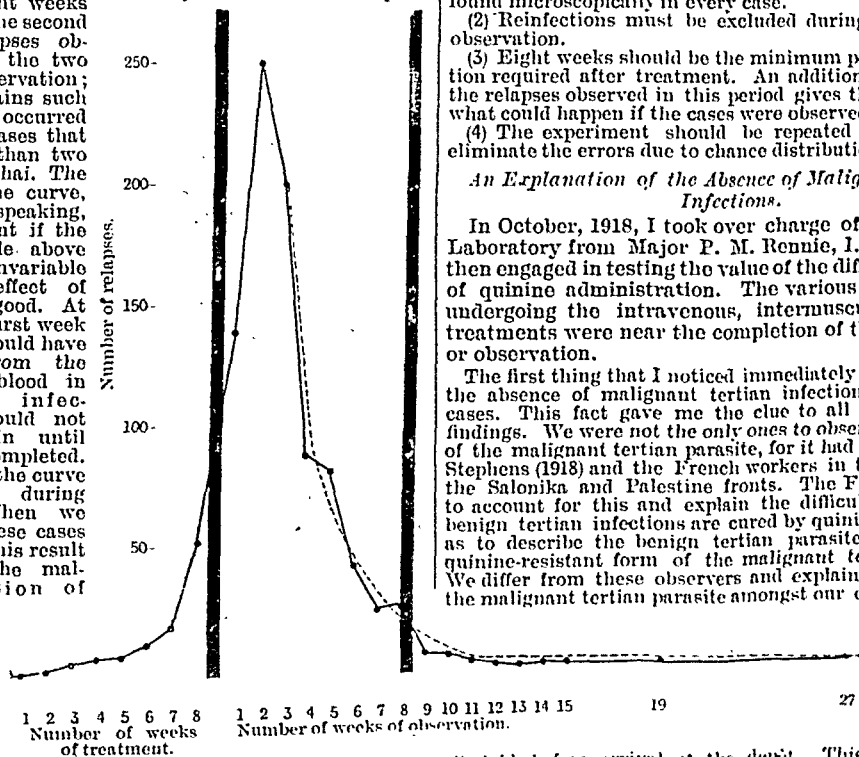
	During treatment.								After treatment.																			Total.
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
(A)	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	27
(B)	1	4	6	7	12	19	53	139	248	199	89	82	43	25	26	7	6	4	2	1	2	1	1	1	1	1	1	1978

These results are better depicted in the form of a graph, which is here shown. The two vertical bars divide the curve into three parts.

The first part contains the relapses observed during the eight weeks of treatment; the second part the relapses observed during the two months of observation; the third contains such relapses as occurred amongst the cases that stayed longer than two months in Dagshai. The first part of the curve, theoretically speaking, should be absent if the statement made above about the invariable immediate effect of quinine holds good. At the end of the first week all parasites should have disappeared from the peripheral blood in benign tertian infections, and should not be seen again until treatment is completed. Instead of this the curve gradually rises during treatment. When we investigated these cases we found that this result was due to the maladministration of quinine, by patients avoiding treatment, intermittent types of treatment, and too large doses. As soon as these factors were recognised and corrected no further parasitic relapse occurred during treatment.

The second part of the curve shows the time frequency of the relapses that occur during the two months' observation after treatment. As the first part of the curve is due to an error it is not included in the calculation of the mean and standard deviation. The mean of these figures is at 3.404 weeks, and the standard deviation is ± 2.42 weeks, indicating that three-quarters of the relapses occur between the first and sixth week after treatment. The eight weeks' period of observation after treatment laid down by Stephens is a sound practical period to test a cure, as it includes over 90 per cent. of the relapses that may occur after treatment. The third part of the curve from the ninth week onwards could not be accurately determined by us, as we could not keep the men indefinitely away from their units during war. I consulted Professor Karl Pearson, F.R.S., to see if he could help me to obtain some idea at which point this curve might possibly end. I must thank him for the trouble he has taken to work out the figures. He tested

Graph showing Frequency Distribution of 978 Parasitic Relapses.



them by two different methods and found that the end-point occurs somewhere about the thirty-sixth week—that is, in benign tertian infections, if the blood is examined every week for nine months and no parasites are found, the case can be regarded as an absolute cure. A rough estimate of this portion of the curve can be arrived at by drawing a free-hand curve from the point at three weeks to the thirty-sixth week, shown as a dotted line in the graph. This portion represents another 6 per cent. of relapses on those already observed during the eight weeks of observation. This additional 6 per cent. gives the necessary correction to obtain the total number of relapses that would occur if the cases were observed for the full nine months after treatment.

(3) The parasite was seen microscopically in every case before the patient was placed on treatment. Individuals harbouring the same species of malarial parasites were tested together under the same conditions. In much of the older work the three species of parasites were indiscriminately mixed up in the same treatment groups.

Stephens (1918) suggested that a seasonal influence was present in his cases, which appeared materially to affect the cure-rate. In an article now in press we have dealt with this point, and consider that the error of chance distribution could explain the variations in cure-percentage better than any seasonal influence. It is immaterial which explanation is correct, but we know that such fluctuations do occur, and a repetition of the test would settle the question whether a cure-percentage was accurate or not.

The conditions required to test a particular cure for malarial fevers may be summed up briefly—

(1) The population under investigation should be sufficiently large and homogeneous. At least 100 men should be treated, and the parasites must be of the same species and found microscopically in every case.

(2) Reinfections must be excluded during treatment and observation.

(3) Eight weeks should be the minimum period of observation required after treatment. An additional 6 per cent. on the relapses observed in this period gives the correction for what could happen if the cases were observed longer.

(4) The experiment should be repeated if necessary to eliminate the errors due to chance distribution.

An Explanation of the Absence of Malignant Tertian Infections.

In October, 1918, I took over charge of the Research Laboratory from Major P. M. Rennie, I.M.S., who was then engaged in testing the value of the different methods of quinine administration. The various groups of men undergoing the intravenous, intermuscular, and oral treatments were near the completion of their treatment or observation.

The first thing that I noticed immediately I took over was the absence of malignant tertian infections amongst our cases. This fact gave me the clue to all our subsequent findings. We were not the only ones to observe this absence of the malignant tertian parasite, for it had been noticed by Stephens (1918) and the French workers in their cases from the Salonika and Palestine fronts. The French, in order to account for this and explain the difficulty with which benign tertian infections are cured by quinine, went so far as to describe the benign tertian parasite as an altered quinine-resistant form of the malignant tertian parasite. We differ from these observers and explain the absence of the malignant tertian parasite amongst our cases as due to the specific action of quinine, for all our cases had undergone a course of treatment with this

alkaloid before arrival at the depot. This statement is based on the following data.

(1) Out of 992 parasitic findings only 14 individuals were found to harbour the malignant tertian parasite. There were 978 showing benign tertian infection.

(2) At this depot our experience of malignant tertian infections was small, but every case treated by quinine was cured. This corresponds with the experience of Thomson (1917) and Barlow (1915). Thomson estimates the cure-rate at 80 per cent. and Barlow at 100 per cent. if treatment were continued for a month.

(3) Our cases were drawn largely from the Punjab, a province where there is a seasonal prevalence of these two parasites, benign tertians at the beginning and malignant tertians at the end of the hot weather. In spite of this seasonal prevalence the malignant tertian parasite was rarely found, as all our cases had been treated with quinine before arrival at the depot.

(4) One hundred and two men had been diagnosed as malignant tertian infections, crescents being noted in their

medical history sheets. These men had been treated with quinine at their units in the plains. In Dagahai they only received an iron tonic. There were no malignant tertian relapses, 64 relapsed with benign tertian infection, and 38 did not relapse. This preponderance of benign tertian relapses in a malignant tertian series is probably due to double infections, as it is difficult to see how the pathologists could have made an error in diagnosing crescents.

(5) In a similar series of 102 different men diagnosed as benign tertian infections these parasites were noted in their medical history sheets, and the men were treated exactly as the group above. There were 75 benign tertian relapses, no malignant tertians, and 26 did not relapse. The lower cure rate in benign tertian infections should be noted and the absence of malignant tertian relapses in both series.

The specific action of quinine on the malignant tertian parasite explains how this parasite disappears from the blood of malarial patients who have returned home from the tropics, as such individuals have been well drugged with quinine.

The Low Sterilisation-rate of Quinine in Benign Tertian Infections.

The second important point that became apparent after we analysed our results was the low cure-rate of quinine in benign tertian infections. Out of 663 cases of this infection treated with quinine there were 32·4 per cent. of cures; nearly 70 per cent. of the cases relapsed in spite of treatment. The series of cases given in Table II. were commenced in Major Rennie's time and completed by us. The results obtained were as follows.

Table II. gives a comparison of the results we obtained by the different methods of quinine administration in benign tertian infections.

TABLE II.

Method.	No. of cases.	Cure per cent.	Duration of treatment.	Quinine in grains per course.
(A) Intravenous combined with oral	100	18	4 days to 8 weeks.	48 to 576
(B) Intermuscular combined with oral	94	27.6	8 weeks.	1224
(C) Oral alone—				
(1) Stephens' intermittent 45 gr. per diem for two consecutive days weekly	90	18.8	8 "	720
(2) Stephens' intermittent 30 gr. per diem for two consecutive days weekly	115	30.0	8 "	480
(3) Ross and Thomson's method continuous for four months	76	52.6	15 "	1980
(4) Continuous for ten days 30 gr. per diem	130	42.1	10 days.	800

Comments.

(1) The duration of the treatment is an important factor in the cure. Kennie found that both in the intravenous (1 to 5 injections) and intermuscular (12 injections) groups the injections had to be followed by an oral treatment, lasting in all two months, in order to obtain a better apparent percentage. In the long continuous treatment (Ross and Thomson), extending over a period of four months, the cure-percentage worked out at 52.6, or double that of the two months' courses.

(2) The method of quinine administration did not materially affect the cure-rate. The intravenous method gave the best immediate results and caused the parasites to disappear from the peripheral blood quicker than the other methods. The absolute cure-rate was bad, as the first few cases were

only given 2 to 5 injections, which were not followed by quinine orally.

(3) The cure-percentage was low in all the courses of two months, and varied from 18 to 30 per cent. The short continuous course of ten days gave a higher cure-percentage than was expected—i.e., 42.1 per cent. It is possible that the error of chance distribution made this figure unduly high, but it must be noted that another rather serious and unknown error was introduced into the group by the fact that some men bought genuine during the period of observation and administered it to themselves. The latter factor only affected this group in one series, as the armistice had been declared and the men were anxious to return to their units in the hope of getting home quicker.

We are therefore able to confirm the fact that quinine has a low rate of cure in benign tertian infections. This has already been shown by numerous other observers.

*The Cause of the Preponderance of Benign Tertians
Amongst our Cases.*

The malarial population we investigated at Dagshai was a selected one. This selection was brought about by quinine, as all our cases had received a course of this drug before arrival at the dépôt.

We have already stated that quinine exerts a highly specific action on the malignant tertian parasite, and therefore practically eliminates this parasite from the cases which have undergone a good course of treatment. The cure-rate of quinine for benign tertians is low, and under such conditions quartan and benign tertian infections will relapse owing to the failure of quinine and appear again and again amongst a treated population. Quartans form a very small proportion of the cases (this infection is relatively rare in the Punjab) and can be neglected. The infection seen amongst a treated population in a non-infected area is practically all due to the benign tertian parasite.

The Effect of Repeated Courses of Quinine on Benign Tertian Infections.

After I had analysed our Dagsbøl results and seen the low cure-rate of quinine in benign tertian infections, I considered that by giving short courses of treatment a larger number of effective men could be obtained in a shorter space of time than by giving the long courses of four months quinine treatment advocated by Ross and Thomson. The results of this experiment are shown in Table III.

This group consisted of 475 men who had been treated by quinine for malaria and sent up to Dagsnäs, where they were placed on an iron tonic. Out of these, 277 relapsed, and benign tertian parasites were found in every one of these relapses. Out of these 277, 204 could be observed for the full two months after a further course of treatment, and of these 145 relapsed. Ninety-five could be followed for the full period after the second course of treatment at Dagsnäs, and 76 relapsed; 45 of these could be followed after the third course and 32 relapsed. Out of the 32 relapses could be followed after the fourth course, and 20 relapsed. The actual cure-rates for these four courses at Dagsnäs work out at 28.9 per cent., 20 per cent., 28.28 per cent., and 20 per cent., respectively, or an average of 24.4 per cent. for each course of treatment. The maintenance of the cure-rate about a constant of 25 per cent. from the first to the fourth course of treatment is a very important fact, as it indicates that neither does the parasite become more and more quinine resistant, nor does the host's resistance alter; otherwise the cure-rates would have diminished with each subsequent course. Clinically one cannot say whether or not a patient can be cured with one or many courses; it seems immaterial whether the patient is undergoing his first or fourth course, for with each course he stands an equal chance of cure.

Whatever explanation may later be advanced to account for this result, it shows that the cure-rate is dependent on some chance factor.

TABLE III.—*Intervals in Weeks during which Relapses Occurred.*

[illegible]

The Rate of Parasitic Destruction.

We know that the asexual malignant tertian parasite forms 8 to 12 merozoites every 48 hours and is most influenced by quinine. The asexual benign tertian parasite forms 16 to 24 merozoites every 48 hours and is less easily destroyed by quinine. On the other hand, the quartan parasite has the slowest rate of multiplication, 8 to 12 merozoites every 72 hours, and is the most refractory to quinine. This difference in the multiplication-rate is thus not sufficient to explain the difference in cure-rates by quinine, although it undoubtedly plays a part.

In our calculations, if we disregard the occurrence of deaths and the production of gametocytes (i.e., non-multiplying forms), we can consider the rate of multiplication to be a continuous one—that is, 12-fold in malignant tertian and 24-fold in benign tertian infections every three days. An adult man of 68 kg. body weight possesses about 25,000 billion erythrocytes. Ross, in his enumerative studies, found that in severe infections about 12 per cent. of the erythrocytes were infected with parasites (3000 billion parasites), and when the parasites fell below 250 million (1 parasite in 100,000 erythrocytes) they produced little or no symptoms. Theoretically, a single parasite would be capable in three weeks' time of multiplying sufficiently to produce fever. Every parasite in the body must be destroyed before a complete cure or sterilisation is effected. In latent malaria we know that a large number of parasites can exist in the host and multiply without causing obvious symptoms, but any condition that depresses the vitality of the host can convert the latent malaria into an active disease. As regards the rate of parasitic destruction, we know that a single dose of quinine cannot cure a case of malignant tertian infection, but a series of doses are required extending over a month before a complete cure results. This fact points to the conclusion that the rate of parasitic destruction must be under 100 per cent., otherwise a few intravenous injections of quinine would be sufficient to sterilise every case of this infection. The rate of destruction must be over 95 per cent., otherwise the course of treatment would have to be prolonged for more than a month. Theoretically the rate of parasitic destruction by quinine in malignant tertian infections is about 93 per cent. of each asexual brood. In benign tertian infections, even after a four months' course of quinine treatment (Ross and Thomson), only 50 per cent. of the cases are sterilised.

Quinine in all types of malarial fevers causes an immediate effect on symptoms and a rapid disappearance of parasites from the peripheral blood. Ross considers that this effect is largely due to a reduction in the parasitic population from 3000 billion or more (febrile stage) to 250 million (afebrile). Under these conditions the rate of destruction in benign tertian infections must lie between these two values, 90 and 93 per cent., and the difficulty in sterilisation shows that the rate must be nearer 95 per cent. than 93 per cent.

The cure-rate for a month's course of treatment in this infection varies for the different alkaloids as follows: Quinine 20 per cent., cinchonine about 40 per cent., cinchona febrifuge 50 per cent., cinchonidine and quinidine about 60 per cent.; so that the last two alkaloids must cause a greater percentage destruction of each generation. As the rate of multiplication of the benign tertian parasite is about twice that of the malignant tertian, it follows that in order to destroy every parasite in the body of the host the treatment should extend over six weeks, instead of a month, as for malignant tertian infections.

The Effect of the Total Alkaloids of Cinchona Bark on Benign Tertian Infections.

Cinchona febrifuge is a preparation containing the total alkaloids extracted from cinchona bark, made at the Government factories in India and issued in the form of 34 gr. tablets. According to MacGilchrist, its average composition is as follows:—

	Per cent.
Crystallisable alkaloids	Cinchonine..... 18.53
	Cinchonidine..... 5.81
	Quinine..... 7.40
	Quinidine..... 22.83
Non-crystallisable alkaloids	Quinoidine..... 29.12
	Moisture, ash, &c..... 16.23

The bark, in addition to these alkaloids, contains acids, neutral principles, colouring matter, a trace of volatile oils, gum, starch, and other vegetable matter. The large amount of ash present in cinchona febrifuge is due to the fact that magnesium sulphate is added to the alkaloidal mass to facilitate the preparation of tablets. Cinchona febrifuge was advocated many years ago by Prain owing to its cheapness. We determined to give it a trial, for if it proved to be as efficacious as quinine, its general use would effect a considerable saving in the amount of bark now used to extract aniline. The drug was tested on two series of men.

The first series of 53 men were treated for 21 days, with 21 grains given daily by the mouth, the cure-percentage worked out at 50.9. The second series of 57 men were treated as above, but the cinchona febrifuge was only given for 10 days; the cure-percentage worked out at 52.7. Combining these two groups of men (110 individuals) the cure-percentage works out at 51.8. The conclusions we arrived at were as follows:—

(i.) The administration of cinchona febrifuge in benign tertian infections is better than quinine. A three weeks' course gives about the same curative results as a four months' course of quinine (Ross and Thomson's method). The immediate results are also slightly better.

(ii.) The amount of cinchona febrifuge given during a course amounts to 441 gr. and costs 1s. 1d., as compared with 1950 gr. of quinine for a four months' course, costing 16s. 8d. (price in June, 1919).

(iii.) Cinchona febrifuge given in tablet form is more pleasant to take and less toxic than quinine.

(iv.) A considerable saving would be effected in the amount of bark, as the same quantity of bark which yields from 5 to 7 lb. of quinine would give 100 lb. of total alkaloid. This is an important consideration at the present time, when there is a shortage of quinine.

The benign tertian parasite is responsible for about 50 per cent. of the malarial infections in India, and in England, amongst the troops returned from the tropics, it is practically the only malarial infection seen. The employment of cinchona febrifuge in this infection would save the Indian Government approximately 2½ lakhs, or £22,500, annually in drugs, excluding the question of efficiency in men. This result alone should justify the value and need of further research work in the treatment of these malarial fevers.

The Effect of the Cinchona Alkaloids on Benign Tertian Infections.

Fourteen alkaloids have been isolated from the various species of cinchona bark, since Pelletier and Dumas in 1820 first discovered quinine and cinchonine. The names and formulae of the various alkaloids found in cinchona bark are as follows:—

(A) Crystallisable alkaloids.

Cinchonine and its isomeride $C_{19}H_{21}O_4N_2$ —Cinchonine and cinchonidine.

Dihydrocinchonines $C_{19}H_{23}O_4N_2$ —Hydrocinchonine, hydrocinchonidine.

Methoxycinchonines $C_{20}H_{23}O_4N_2$ —Quinine, quinidine.

Methoxydihydrocinchonines $C_{20}H_{25}O_4N_2$ —Hydroquinoline and hydroquinidine.

Alkaloids of the formula $C_{19}H_{23}O_2N_2$ —Quinamine and conquinamine.

Alkaloids of the formula $C_{16}H_{17}O_2N_2H_2O$ —Pavine.

Alkaloid of unknown composition—Javanine.

(B) Amorphous alkaloids known as "quinoidine."

Dicinchonine $C_{38}H_{41}O_8N_4$.

Diconquinine $C_{38}H_{43}O_8N_4$.

We can dismiss the amorphous alkaloids from a therapeutic point of view, for we treated a dozen cases with the Laverain remedy (a mixture of quinoidine, arsenic, and picric acid). All these cases relapsed, and some of them had parasites in the peripheral blood during the whole course of treatment. Eight only of the above crystalline alkaloids need be considered, as the others exist merely in minute quantities. These alkaloids can be grouped in two series.

(A) The cinchonine series, which includes cinchonine and its isomeride cinchonidine; and the dihydrocinchonines—hydrocinchonine and hydrocinchonidine.

(B) The quinine or methoxycinchonine series, including quinine and its isomeride quinidine, hydroquinine and its isomeride hydroquinidine.

We can dismiss quinine at once, as only 7.4 per cent. of this alkaloid is present in cinchona febrifuge, and we have seen that this alkaloid produces a low cure rate in benign tertian infections. Cinchonine was tested in 14 patients, of whom eight relapsed. The drug is very toxic and badly tolerated. I had the greatest difficulty in persuading these individuals to continue their treatment for the full three weeks, owing to the intense symptoms of cinchonism. The number of relapses did not justify the employment of this toxic alkaloid for any further trials. The hydro-alkaloids of the quinine and cinchonine series I was unable to obtain, and we were therefore left to test the two alkaloids, quinidine and cinchonidine.

I placed a batch of men on treatment with these two alkaloids. At this important stage of my research I was ordered to the recent Afghan affray. The testing of these alkaloids I therefore entrusted to my co-worker, Assistant Surgeon Dewey, who has kindly forwarded to me the results obtained.

Quinidine sulphate 10 gr. orally twice a day for 21 days; 62 cases of benign tertian infection treated, of whom 23 relapsed. Cure-percentage 62.9 per cent.

Cinchonidine sulphate 10 gr. orally twice a day for 21 days; Forty-six cases of benign tertian infection treated, of whom

EXFOLIATIVE DERMATITIS
OCCURRING DURING ARSENICAL TREATMENT.

(With a Note on Toxic Jaundice.)

By E. G. FRENCH, M.D., F.R.C.S. EDIN.,

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DURING nearly ten years' experience with arsenical preparations in various parts of the world many thousands of cases of syphilis have come under my supervision, and it is my opinion that *severe* cases of exfoliative dermatitis and toxic jaundice occur only in a very small fraction. From time to time cases of erythema occurred after one or more injections, but this condition soon disappeared; the erythema has the appearance of a scarlatiniform or morbilliform rash, and has frequently been mistaken by inexperienced medical officers for scarlet fever. In some cases it is accompanied by high pyrexia, 104° or 105°, but more often than not it is comparatively mild. It may also be mistaken for German measles, and acute cases become severely ill. Desquamation follows these cases.

The erythematous condition in mild cases may be limited to a part of the body—for example, the neck or chest and abdomen. In severe cases it spreads over the whole of the body, and if it then develops into exfoliative dermatitis a very severe condition has come about and the patient's life is in danger. Both these conditions come on at varying periods during the course of treatment. Some patients will develop severe dermatitis after the second injection of 0.6 g. N.A.B.; others later in the course. Sometimes it makes its appearance immediately after the course of seven weekly injections of 0.6 g. N.A.B. I have never seen it develop later than a month after completion of treatment.

During several years in India and London I saw only four cases of severe exfoliative, but during service in France I had some 20 cases under my supervision. I feel convinced that the majority of these cases were due to exposure to cold. The conditions could not be as comfortable as in hospitals at home and the patients were less protected. Practically all the cases occurred during the winter months, and, moreover, the fact that only two officers out of close on 2000 under treatment for syphilis developed severe dermatitis was significant. The officers had more comfortable accommodation and were able to go to a warm bed immediately after the injection and remain there for 24 hours. Although warm spring beds were provided for the soldiers for the first 24 hours after the injection, it was most difficult to keep them there owing to the large numbers undergoing treatment.

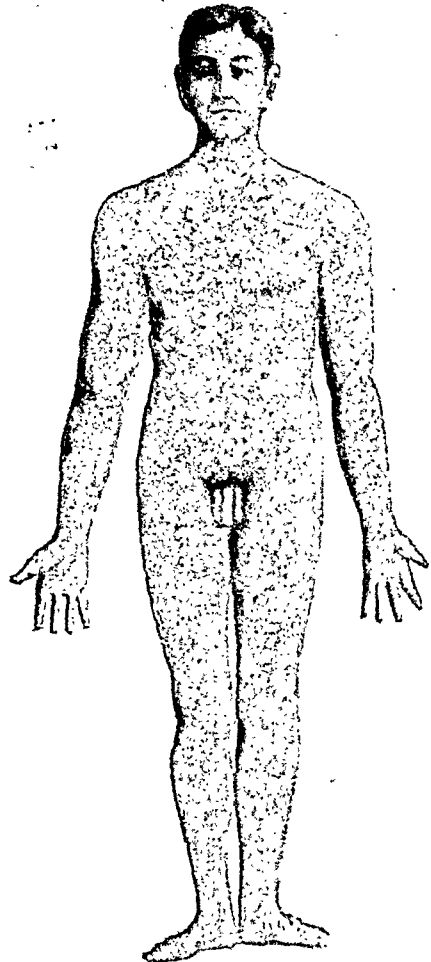
The Clinical Picture.

The Clinical Picture.

In severe exfoliative dermatitis the whole body is usually covered with a scarlatiniform rash, but somewhat darker in colour. This sometimes becomes confluent over parts of the body. Not infrequently small blebs make their appearance behind the ears and on the neck. Pustules and blebs form all over the body, and after these have ruptured crusting and scaling develop. Itching is very troublesome and becomes a burden to the patient. There is always a great deal of swelling of the face, involving the lips, nose, eyelids, ears, and cheeks. The conjunctivæ become very inflamed, lachrymation and photophobia being particularly troublesome. A weeping eczematous condition is nearly always present in some parts of the body, the ears, lips, axillæ, pubis, and scrotum being frequently affected in this way. The eyelids are very often so swollen that the patient is unable to see. The skin takes on a deep reddish-brown tint and there is a great deal of exfoliation of the epidermis subsequently. The weeping eczema and the presence of large pustules in various parts of the body, especially in the axillæ and groin, are two most distressing complications. When the acute stage is passed the skin is deeply pigmented and is harsh, thin, and atrophic. The scalp becomes swollen and eczematous, and settles down after a time with almost complete loss of hair, which grows again in the course of a few months. The eyelashes are frequently shed, but grow again. The soles and palms develop thick epidermic plates (hyperkeratosis), which are completely shed during convalescence; the nails also become affected. In a few cases

there is high fever and headache, with diarrhoea, retching and vomiting of bile-stained fluid. The patient usually looks and is very ill; the fauces are congested and the tongue is dry and brown. Owing to the loss of sleep due to the irritation of the skin condition and the toxic state of the patient his health becomes very much impaired, and he goes down hill rapidly. Oedema of the lungs and broncho pneumonia often complicate these cases and cause the fatalities.

In some of the severe cases the eruption is hæmorrhagic in several parts of the body. There is always marked general adenitis, and the glands, especially those of the axillæ, get very large, soft, and tender; not infrequently they break down. The urine nearly always contains a small amount of albumin. During the process of desquamation



Patient suffering from exfoliative dermatitis. (Reproduced from a coloured drawing.)

the patient's bed is practically covered with flakes and large scales; after the desquamation the skin is smooth, having a somewhat glazed pinkish look. The convalescence to complete recovery is slow, but the patient often makes rapid progress after the acute illness. As soon as the symptoms have subsided his appetite, which is very poor, improves markedly, and he begins to take an interest in himself. The depression, which is a characteristic feature, disappears and his general health steadily improves. After the desquamation is complete the patient is very much altered in appearance, and it is doubtful if his best friend would recognise him at first sight. However, after three or four months he regains nearly all his characteristics and looks like a normal individual again.

Prognosis.

Prognosis.
The prognosis is favourable when appropriate treatment is applied as soon as the condition is diagnosed. Lung complications not infrequently develop in spite of all precautions, and in these cases the prognosis is bad. It is my experience that the more severe is the skin affection the greater the internal complications, which put the patient in great peril of his life. Of the three cases who died with

lang complications all had the most extensive and severe dermatitis imaginable. The mild cases responded to intramine readily, and I have never seen any appreciable internal complications in any of them.

Treatment.

In cases where the eruption is one of simple erythema—lotio calamine, calamine cream, and bran baths. Intramine I consider the best remedy, 2.5 c.cm. of intramine being given intramuscularly in the buttock in the same manner as an intramuscular injection of mercury. This is repeated every fifth day until the disappearance of the erythema in simple cases or the exfoliation in severe cases. In mild cases two doses will be sufficient, but in severe cases five to ten doses are often required. I commenced the use of intramine in these cases in 1917 and have used it in every case since then. At first Mr. J. E. R. McDonagh, who was then working in the same hospital and who introduced the drug to the profession, advised the full dose of 5 c.cm. of the original preparation, but we found that this produced too much reaction and decided to make the dose 2.5 c.cm. After a little experience it was found that this dose produced little or no reaction, and could be given at intervals of five days without inconvenience to the patient. After a time Mr. McDonagh put up his preparation in two separate tubes, which had to be mixed before injection. For convenience I have been using 3 c.cm. of the mixture for each dose. The drug acted quickly, producing most satisfactory results. In some cases an appreciable amount of discomfort at the site of injection for 24 or 48 hours was noticed by the patient, and in nearly every case the temperature rose 2° and fell on the following morning, and did not rise again until the next dose was given. It is thought that dermatitis is caused by over-oxidation of the tissues of the body by arsenic, and as intramine acts as a reducing agent in the body it produces good and speedy results. In those cases of generalised erythema with hyperpyrexia (105°) and headache, venesection has proved most satisfactory and has aborted the severe symptoms. From 10 to 15 ounces of blood should be withdrawn, but unfortunately venesection does not prevent all cases from developing severe symptoms. However, it should always be carried out as early as possible in these acute cases.

When the stage of pustular eruption develops ichthyol ointment 10 per cent., or lead and zinc paste, are very valuable applications; for the weeping eczematous condition calamine lotion, zinc oxide and starch lotion, and zinc oxide ointment, at a later period; calamine powder is also useful. For the conjunctivitis two or three drops of argyrol, 25 per cent., dropped into the eyes morning and evening effect a speedy cure. Boric lotion should be used after the argyrol. Before the introduction of intramine the above local remedies were the chief ones in use for treating cases of exfoliative dermatitis and recovery took many months. Nowadays, with the use of intramine, an amino-sulphur compound, they recover in one quarter of the time.

The diet should consist of milk and soda, plenty of barley water, milk puddings of all kinds. Lime water should be added to the milk if there is diarrhoea or digestive disturbance. Meat, meat extracts, and eggs are contra-indicated. Tonics should be prescribed. Further treatment with arsenic is commenced during the convalescent period; the patient by this time has degenerated, is feeling fairly well, and is able to walk about the ward. Only half the original dose is administered weekly—namely, 0.5 g. N.A.B. The patients usually do well in the hospital, but some require arsenic preparations at different times, but with the exception of four all the cases occurred in France, where N.A.B. was the preparation in use.

Post-mortem Findings of the Three Fatal Cases of Exfoliative Dermatitis.

CASE 1.—Brain: A little thickening of the pia at the vertex—otherwise normal. Lungs: Bronchopneumonia, right lower lobe; otherwise normal. Some small amount of pus in small tubules. Heart: 83 oz., small, firm. No V.D.H. Kidneys: 84 oz., large, tallowy, pale cortex, not narrowed—much paler than the medulla. Capsule strips with ease, surface pale and smooth. Large white kidney. Spleen: 82 oz., congested. Spinal cord: Normal. Liver: 52 oz., pale, fatty. No subserous hemorrhages. Marked exfoliative dermatitis.

CASE 2.—Skin: Petechiae. Lungs: Both lungs oedematous. No consolidation. Heart: 101 oz., pale, soft. No V.D.H. Liver: 74 1/2 oz., large, pale, and a little fatty. Spleen: 90 oz., not normally beyond its size. Kidneys: 6 and 6 1/2 oz., cortex streaked, a little injected. Cortex strips naturally, surface smooth. No subserous hemorrhages. Marked exfoliative dermatitis.

CASE 3.—Skin: Petechiae. Lungs: Several infarcts in each with a little surrounding hyperemia. No consolidation. Heart: 93 oz., dilated, pale, very soft. No V.D.H. Liver: 59 oz., somewhat fatty. Spleen: 7 oz., not abnormal. Kidneys: 6 and 6 1/2 oz., pale, not swollen. Cortex strips naturally. Marked exfoliative dermatitis. There was severe inflammation of the whole of the alimentary canal which prevented easy swallowing and digestion; this patient had to be fed per rectum a few days before his death. He was admitted suffering from severe secondary syphilis, with involvement of the liver. He died remarkably well a few days after the commencement of his course when dermatitis developed. In spite of early treatment with intramine he got rapidly worse.

The dermatitis in all three cases occurred within a month of completion of a course of moderate doses—viz., 0.6 g. N.A.B. Cases 1 and 2 were readmitted suffering from lung complications.

TOXIC JAUNDICE.

I am of opinion that there are certainly two types of jaundice occurring during the early stages of syphilis.

First type.—The jaundice not infrequently appears before treatment with arsenic. There are some medical officers who persistently attribute every case of jaundice in syphilis to arsenic compounds. I have seen those medical officers enter a ward containing special cases and ask as they go up to the bedside of the patient with jaundice, How many doses of "606" has this patient had? When told that the patient has not had any arsenic preparations, being only a recent arrival, they look astonished. Having treated venereal diseases for over 20 years I have noticed many cases of mild jaundice in patients suffering from syphilis. We always used to consider that syphilis caused the jaundice, there being no specific arsenical preparations in those days to put the blame on. Several cases have been noticed after the first two or three injections of arsenic. This comparatively mild jaundice is, no doubt, due to a widespread fatty degeneration of the liver cells caused by toxins of the *Trypanum pallidum*.

Second type.—What is really arsenical jaundice comes on towards the end of the course of seven weekly injections of 0.6 g. N.A.B. In all probability it is due to the syphilitic degeneration of liver cells as well as to the toxic action of arsenic. The jaundice is intense, the patients become seriously ill, and the disease is very liable to end fatally unless prompt treatment is applied. This type of jaundice is the result of an intense catarrh of the minute bile-ducts. The colour of the skin and conjunctivae is of an intensely deep yellow—urine yellowish brown or dark brown, stools very pale. Fifteen cases of this toxic type came under my supervision from time to time, two of whom ended fatally.

Treatment.

In both the mild and severe cases I consider that intramine is the best remedy we have at our disposal. It is given intramuscularly into the buttock and in doses of 3 c.cm. at intervals of five days. In mild cases two doses are sufficient, but in the more severe cases as many as ten injections have been given. I believe I am right in saying that no intramine was used in treating jaundice in 1917 at St. G. Hospital. Mr. McDonagh and I decided to employ it in all cases suffering from jaundice. Arsenical preparations in half the usual dose were given to the patient as soon as the jaundice cleared, and were continued until the full amount of the course was completed. Other remedies, such as sodium sulphate, calomel, and bismuth and soda, were also administered. The intramine in these cases also acted as a reducing agent.

Post-mortem Findings of Two Cases of Toxic Jaundice.

CASE 1.—Brain: A little excess of cerebro-spinal fluid and a smell of acetone, otherwise normal. Skull: Shows irregular ossification. Lungs: Subpleural petechiae and hemorrhages, a few interstitial hemorrhages, oedema, no consolidation. Heart: 7 oz. small, subpericardial hemorrhages. Muscles not soft. No V.D.H. Liver: 25 oz., very small, brownish with many slightly raised greenish areas; these are found on section to blend and occupy large areas of the total liver. Spleen: 7 1/2 oz., large, soft, and pale. Structure not recognisable. Kidneys: 4 1/2 and 5 oz., yellow and swollen cortex. Kidney as a whole is small. Capsule strips naturally. Stomach: Submucous hemorrhages, hemorrhages in omentum and behind peritoneum of posterior abdominal wall. A subserous hemorrhage in the ileum. Sir John Rose Bradford, the consulting physician of the area, witnessed the post-mortem examination and expressed his opinion that the condition of the liver was not true yellow atrophy. The above was a case of a congenital syphilitic showing bossing of the skull and saddle-back nose, who developed a typical syphilitic chancre after exposure. On account of his very light weight, he was only given 0.6 g. doses of N.A.B. and developed his jaundice after the fourth injection. Intramine was given, but had no appreciable effect.

CASE 2.—Brain: normal. Heart: 83 oz., subpericardial hemorrhages. No V.D.H. Lungs: Oedema in both, haemorrhages into the subpleura. Liver: 27 oz., very small, brown, in a brown tinge, with greenish areas similar to first case. Spleen: 7 oz., somewhat pale and soft, structure becoming unrecognisable. Kidneys: 5 and 5 1/2 oz., cortex swollen and pale, capsule not adherent. Stomach: Hemorrhages behind the peritoneum of posterior abdominal wall, submucous hemorrhages. Jaundice appeared after the sixth injection of 0.6 g. N.A.B.

The post-mortem examinations were carried out by Dr. T. H. G. Shore, then pathologist, Etaples Area, France.

INFLUENZA OUTBREAK AT SINLA.—With the sudden advent of warmer weather, influenza, which has been smouldering for some time past, has now broken out somewhat noisily. The Indian quarters are most affected. Influenza has appeared also in the neighbouring States, where the mortality rate is considerable. The local authorities have issued a notice inviting attention to methods of prophylaxis.

AGGLUTINATION EXPERIMENTS WITH
TRENCH FEVER RICKETTSIA.

BY J. C. G. LEDINGHAM, C.M.G., D.Sc., M.B.

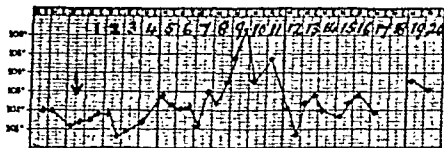
(From the Lister Institute, London.)

ON my return from service in May, 1919, I was requested by Sir David Bruce, Chairman of the War Office Trench Fever Committee, to give some assistance in connexion with this inquiry. I proposed to take up the question of the transmissibility of the trench fever virus to laboratory animals. Experiments with this object had, in the hands of previous workers been attended with complete failure to demonstrate any unequivocal pyrexial phase commencing after a definite incubation period. I may say at once that my own experiments with rabbits and guinea-pigs inoculated either with trench fever blood supplied by infected volunteers at the New End Military Hospital or with infective lice excreta, proved in the main negative, in so far as the onset of a definite febrile phase following a definite incubation period was concerned. In a few instances, however, a striding pyrexial phase did intervene after a definite apyrexial period, and while I am fully cognisant of the difficulty of interpreting temperature charts in small animals, where pyrexial phases only are available as evidence of successful infection, the charts in the few cases mentioned were, in my opinion, strongly suggestive of a successful transmission of the virus. The chart of one of these apparently successful inoculations in the rabbit is appended for reference, while the general question of the transmissibility of trench fever virus to animals is postponed to a later period when further evidence may have accumulated. It is, of course, obvious that until we find some susceptible laboratory animal further research into the nature and properties of the virus will be greatly hampered.

The protocol of the experimental rabbit whose chart is attached was as follows:—

Rabbit. Weight, 980 g. Inoculated August 13th, 1919, intravenously with a saline emulsion containing 3 mg. of infective lice excreta. (Three other rabbits, each of which received the same dose at the same time, showed no definite pyrexial phase.) On August 22nd, when the fever had

CHART 1.



Rabbit. Received lice excreta intravenously on day indicated by arrow.

reached its height, blood was taken for a passage experiment, but the two animals inoculated intravenously therewith showed no definite pyrexial phase. Some guinea-pig charts are also appended below.

Agglutination of Rickettsia.

While such experiments were in progress, it was considered desirable to ascertain whether the sera of animals which had received inoculations of infective lice excreta in saline emulsion showed any immunity reaction in test-tube experiments when brought in contact with such emulsions. If it could be shown that the rickettsia present in such emulsions were agglutinable by the sera of animals inoculated with infective lice excreta, whether a definite fever resulted or not, the evidence would certainly be of value in bringing the rickettsia into line with other formed micro-organismal bodies in the matter of the ordinary physiological immunity responses.

So long ago as 1909 Ricketts¹ was able to demonstrate that the rickettsia bodies contained in saline emulsions of the crushed eggs of the *Dermacentor* responsible for

the transmission of Rocky Mountain spotted fever were agglutinated not only by the sera of guinea-pigs after recovery from a tick infection, but also by sera obtained from human cases.

His emulsion for agglutination purposes was prepared by crushing 40 to 50 eggs of *Dermacentor* in 0.05 c.cm. of salt solution. Hanging drops were prepared, and after two hours' incubation the drops were dried, fixed in absolute alcohol, and stained. With the sera of three recovered guinea-pigs agglutination occurred in dilutions up to 1 in 160, while normal guinea-pig sera produced only slight agglutination in dilutions up to 1 in 10. The three human sera tested had been kept for varying periods in the cold room, and while inhibition zone phenomena were manifested, agglutination of rickettsia was evident in dilutions varying from 1 in 40 to 1 in 200. Normal human sera, on the other hand, did not agglutinate the rickettsia in such emulsions in dilutions higher than 1 in 10.

Otto and Dietrich² have also during the late war obtained evidence of the agglutinability of typhus fever rickettsia present in the intestinal contents of infected lice by the sera of immunised rabbits and of typhus patients.

The intestinal contents of the infected lice were repeatedly washed and shaken and finally passed through a hardened filter. By this means a homogeneous emulsion of rickettsia was obtained. The results were read under dark-ground illumination. The sera of rabbits immunised with intestinal contents of infected lice (1 in 2 to 4 lice at intervals of 3-5 days) acquired a titre of 1 in 200. Data are also recorded with the sera of two typhus cases, one of which agglutinated rickettsia completely (++++) in a dilution of 1 in 50 and definitely (++) in 1 in 100, while the other gave a (++) reaction at 1 in 50 and a (+) reaction at 1 in 100. Of the control human samples tested they observed that the sera of two Volhynian fever convalescents gave some agglutination (++) at 1 in 50, but little or none at 1 in 100.

Agglutination of Trench Fever Rickettsia.

Preparation of emulsion of rickettsia.—About 10-20 mg. of the dry lice excreta supplied to me by Mr. A. W. Bacot and Dr. J. A. Arkwright from lice fed on experimentally infected trench fever patients at the New End Military Hospital were ground up very thoroughly in an agate mortar with saline containing 1 in 500 formalin. The excreta were simply moistened with the saline at first and with the mortar converted to a thick brown ropy mass. More saline was added gradually and the material thoroughly emulsified. The volume was then made up to 10 c.cm. according to the richness of the original material in rickettsia bodies. On standing a brown precipitate falls very rapidly, and the process may be hastened by centrifuging for a few minutes. The supernatant portion is a brownish-yellow opalescent fluid which should contain no gross particulate matter visible to the naked eye. A drop of this fluid when evaporated and appropriately stained should show the rickettsia bodies standing out clear and discrete, without trace of clumps, on a clear background.

Technique of agglutination test.—Having secured a satisfactory emulsion of rickettsia one prepares dilutions of the sera to be tested, which are then mixed in equal parts with the rickettsia emulsion (generally one drop of each from a dropping pipette either in dwarf test-tubes or in hanging drops in a moist chamber) and placed in the incubator at 37°C. for at least four hours. After incubation a drop from each tube is placed on a slide and allowed to evaporate on the top of a copper paraffin oven (at 50-60°). The slide is then placed for half an hour in an acid alcohol bath (1 per cent. HCl in abs. alc.), washed in running tap-water for at least ten minutes, and finally stained in the inverted position in a Giemsa bath containing one drop of the fluid stain to 1 c.cm. of a mixture in equal parts of tap and distilled water. The staining should be prolonged for at least 18 hours.

This modified Giemsa technique, for which I am indebted to Dr. Arkwright, proved far superior to that which I had originally employed in demonstrating discrete or clumped rickettsia in evaporated drops. By the use of acid alcohol fixation, followed by thorough washing, much of the protein precipitate, whether coming from the lice excreta emulsion or from the agglutinating serum, was got rid of, while the rickettsia stood out brilliantly defined on a clear background.

Results.

The first test to determine whether rickettsia could be made to agglutinate at all was made on August 25th, 1919, with the following sera:—

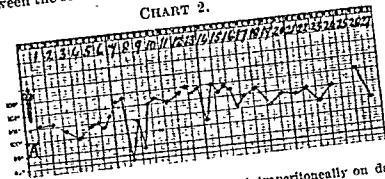
(1) Four rabbit sera taken on the twelfth day after inoculation with lice excreta. The chart of one of these is shown above.

¹ Ricketts, H. T.: Journ. Amer. Med. Assoc., 1909, lii., 373.

² Otto, R., u. Dietrich: Deutsch. med. Woch., 1917, 577.

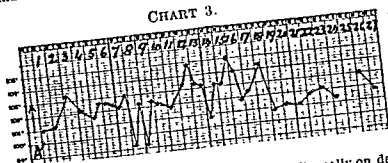
(2) Serum of Guinea-pig A on the nineteenth day after inoculation intraperitoneally with lice excreta. The temperature chart of this animal is attached, along with that of another guinea-pig (A') inoculated similarly on the same day (August 6th). These two charts are strikingly similar, and both present a saddle-back effect with collapse readings between the seventh and tenth days.

CHART 2.



Guinea-pig A. Received lice excreta intraperitoneally on day indicated by arrow.

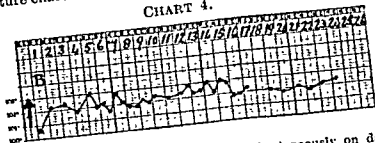
CHART 3.



Guinea-pig A'. Received lice excreta intraperitoneally on day indicated by arrow.

(3) Serum of Guinea-pig B on the nineteenth day after subcutaneous inoculation with lice excreta. Annexed temperature chart showed little oscillation.

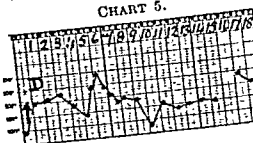
CHART 4.



Guinea-pig B. Received lice excreta subcutaneously on day indicated by arrow.

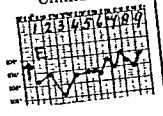
(4) Serum of Guinea-pig C on nineteenth day after intraperitoneal inoculation with lice excreta. Temperature chart showed no oscillations.

CHART 5.



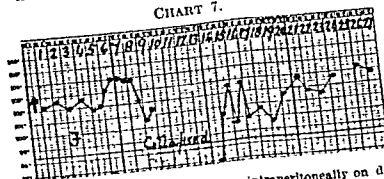
Guinea-pig C. Inoculated on day indicated by arrow with blood from E. (Intraperitoneal.)

CHART 6.



Guinea-pig E. Received lice excreta intraperitoneally on day indicated by arrow. Killed on ninth day. Blood passed to D.

CHART 7.



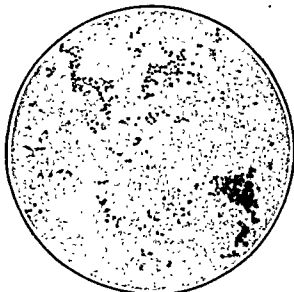
Guinea-pig F. Received lice excreta intraperitoneally on day indicated by arrow.

(5) Serum of Guinea-pig D taken on the tenth day after intraperitoneal inoculation with blood from Guinea-pig E.

This latter animal was killed on the ninth day after intraperitoneal inoculation with lice excreta in order to provide blood for passage experiment. Another animal, Guinea-pig F, which received the same dose as Guinea-pig E, on the same day, showed a striking chart which is reproduced along with those of D and E. Guinea-pig F was in a state of collapse for four or five days following the first febrile phase, which commenced on the sixth day after inoculation. During the collapse phase, when subnormal temperatures were registered, all the abdominal hair came away. All the above sera were tested in dilution of 1 in 10, and two normal guinea-pig sera and two normal rabbit sera were used as controls. Complete agglutination of rickettsia took place with the four experimental rabbit sera and with Guinea-pig A. The other guinea-pig sera produced practically no agglutination or, at the most, minute clumps, while the films prepared from the control sera showed absolutely discrete unclumped rickettsia.

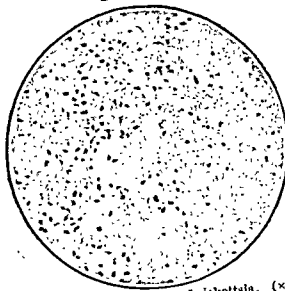
The experiment was repeated on several occasions in the case of the rabbit series, and agglutination was found to disappear beyond a dilution of 1 in 40.

FIG. A.



Agglutination of trench fever rickettsia by immune serum. ($\times 2000$.)

FIG. B.



Control emulsion of unclumped rickettsia. ($\times 2000$.)

The question then arose whether a reaction of this kind could be explained as a non-specific agglutination of rickettsia occurring in the course of the interaction of immune serum with the louse-protein matter contained in the emulsions with which the animals were inoculated. To settle this point two rabbits were immunised with lice excreta containing rickettsia and were inoculated with lice excreta. Three injections were given, on Sept. 4th, Oct. 27th, and Oct. 31st, about 10 mg. being the dose on each occasion. The animals were bled on Nov. 6th and the sera titrated, with the result that the sera of the animals inoculated with the highly infective lice excreta agglutinated rickettsia in so high a dilution as 1 in 300, while those immunised with the excreta of normal lice gave mere traces of agglutination at 1 in 5.

The annexed micro-photographs, for which I am indebted to Dr. Duncan Reid, show the appearance of rickettsia when clumped in the presence of immune

serum and in the control unclumped state (magnification 2000).

Owing to the apparent disappearance of trench fever it has not been possible so far to obtain samples of blood from recent cases in order to ascertain whether the reaction possesses a diagnostic value. The only material available has been derived from old cases of 6-12-18 months' standing with symptoms of "chronic" trench fever. For this material I am indebted to Dr. J. L. Dimond at the New End Hospital. None of these cases gave a reaction even in 1 in 5 dilution. Further data, however, may be obtained from the investigation on serological lines of experimentally infected volunteers, and more especially passage cases inoculated with infective blood.

Summary.

(1) Experiments (about 50 in all) undertaken with the object of transmitting trench fever virus to laboratory animals proved in the main negative. A very small minority of inoculated rabbits and guinea-pigs, however, exhibited temperature charts which at least suggested a successful transmission of the virus. The question must for the present remain undecided, but it is probable that a certain small percentage of normal rabbits and guinea-pigs may be susceptible to the virus.

(2) In the course of the work it was established that the rickettsia bodies present in the excreta of lice fed on trench fever patients are agglutinated in the presence of immune serum obtained from animals immunised with infective lice excreta.

(3) Trench fever rickettsia are not agglutinated by the serum of animals immunised with the excreta of normal uninfected lice.

THE VALUE OF POSTURE IN THE AFTER-TREATMENT OF "STIFF-SHOULDER."

BY CHARLES MACKAY, M.D. MELB.,

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WHETHER the disability be caused by a compound or simple fracture in the neighbourhood of the joint, by a severe dislocation, by a primary weakness of muscle through injury of the nerve-supply to the deltoid, trapezius, serratus magnus, or by secondary muscle-wasting, a not infrequent result of injury to the shoulder is the so-called "stiff-shoulder."

A criterion of the functional result following treatment of an injury of this character would be evidenced by the ability of the patient when standing up, firstly to abduct the arm to a right angle, on a horizontal plane with the shoulder, then to rotate the arm externally, and finally to raise it vertically above the head. These movements, so apparently simple in health, are very easily lost; their mechanism is delicate and complicated, and a loss of function of one of its component elements may be sufficient to nullify the activity of the remainder.

The expression "stiff-shoulder" is used in this article to mean one at which the greater part of this normal range of voluntary movement is not obtainable; in which attempts at passive movement apparently produce pain, are resisted by the patient, and are often voluntarily resisted. It is not intended to apply to old cases of rheumatoid arthritis, nor to the pathological conditions subsequent to severe injuries and acute inflammatory mischief in the joint itself, with the formation of definite articular adhesions and osteoarthritic changes limiting movement. In the type of "stiff-shoulder" which is here referred to the main causative factors interfering with normal function are considered to be the weakness of the muscles which abduct, externally rotate, and elevate the arm, and in a percentage of cases the chronic contraction with shortening of the muscles which adduct and internally rotate the limb. Additional factors in some cases are the presence of periarticular adhesions in the surrounding

structures of the joint, causing pain on movement, and, what is often very important, the persistence of a hysterical element, the result of prolonged disuse and previous painful experiences.

A disablement of this description which has existed for any length of time presents a difficult and often very unsatisfactory subject for treatment; it is accompanied by an amount of muscle-wasting and loss of function which seems to be out of proportion to the extent of the original injury. The usual history in this type of case is that of an accidental injury to the shoulder some months previously, treated by flexion of the arm, which was bound to the side. Subsequently difficulty was experienced in getting the arm away from the side and above the head; this has persisted in spite of treatment by massage, electricity, and movement of the arm under an anæsthetic. The patient complains that the arm is painful when movement is attempted and is practically useless; on inquiry it is found that no abduction arm-splint has been worn, and that no attempt has been made to minimise the effect of gravity or gradually to restore function in the horizontal posture.

The Mental Element.

In many cases of weakness of the muscles of the shoulder-girdle I have found what one might call a definite mental element in the disability; in some patients this is manifested by the adoption of an anxious resistive attitude, and in others of a passive apathetic one. In whatever way this condition is exemplified, however, the result is that the disability is exaggerated, and the difficulties of treatment correspondingly increased.

The treatment of the original injury will necessarily be surgical, and will probably entail a varying period of immobilisation on some form of retentive apparatus. To facilitate early recovery of abduction and elevation an abduction rectangular arm-splint of some kind should be used whenever possible. Todd, speaking of the present after-treatment of dislocations of the shoulder by fixation of the arm to the side, condemns it as being irrational, unscientific, and in actual practice unsuccessful.

In my opinion the best type of abduction arm-splint is the one described and illustrated by Dr. W. Colin Mackenzie in the *British Medical Journal* of Feb. 24th, 1917, and stated to have been introduced by him in 1908. This splint should be made for the individual patient, and it can be adjusted and modified to suit varying types of shoulder injury; its obvious advantages are its ease of application and removal, with the constant support which it gives to the muscles of the shoulder-girdle. When immobilisation is completed the difficulties of the after-treatment will greatly depend upon whether a suitable abduction arm-splint has been worn or not. In the former case recovery of movement may be rapid and comparatively easy, in the latter correspondingly slow and difficult. One of the reasons for this striking difference is that the splint will have prevented any contraction and shortening of the adductor and internal rotator group of muscles, while at the same time resting without stretching their important opponents.

Gravity an Important Factor.

In treating the original injury and in attempting to regain movement at the shoulder-joint it is all-essential to recognise the very important part played by gravity. Text-books do not lay sufficient stress on this factor, and it is apt to be forgotten that the weight of a muscular arm may be from 10 to 14 lb. If after an injury to the joint or its neighbourhood the arm be left mainly unsupported as regards its own weight, the constant dragging pull exerted by gravity will greatly aggravate any reflex atrophy of the shoulder-girdle muscles; this condition may become so marked in old cases as to produce a sub-luxation of the humerus. In this connexion it is important to lay stress on the point that muscles, not ligaments, are the primary supporting structures of a joint such as the shoulder. The deltoid muscle especially—one of the main supports of the shoulder-joint—has acquired a sinister reputation for

rapid wasting which is unequalled by that of any other major muscle in the body.

In all injuries in this region an important point to remember is the preservation of the insertion of the deltoid; if this has been lost at the time of injury the resulting disability, as instanced by Bland-Sutton, will, in spite of any after-treatment, necessarily be very great. The deltoid and the trapezius are here regarded as the essential muscle factors in any attempt to regain movement at the shoulder-joint by rest and muscle re-education; one or other having been lost the utility of the arm is very greatly diminished. When the surgical condition of the injury allows of an attempt at movement the removal of the splint should be very carefully supervised, and the patient then made to lie flat on a wide couch—30 inches—with a low pillow under the head and neck.

The Essential Principle in Treatment.

The line of treatment here advocated is simple, and its very simplicity perhaps accounts for its comparative neglect; with personal modifications it follows the plan of muscle re-education advised by Dr. Colin Mackenzie in his recent work on the "Action of Muscles."

Its essential principle is to encourage any possible amount of voluntary movement and to treat the patient at the beginning in the lying-down horizontal position. This position helps considerably to eliminate two important factors retarding recovery of movement, gravity—the weight of the arm—and muscular spasm. It is necessary to obtain muscle relaxation before the attempt at voluntary movement is begun, and in the horizontal position this relaxation can be most easily obtained. With the elbow flexed and the forearm supported, the patient is then encouraged to abduct the arm farther and farther away from the side and afterwards gradually to elevate it. In order to facilitate movement in difficult cases cardboard powdered with chalk may be placed under the arm to diminish frictional resistance. These attempts to obtain voluntary movement should be carried out once, twice, or three times a day on a firm support, table or couch, and for a variable period depending on the weakness of the muscles and on the ability of the patient to concentrate his attention on the muscular effort involved. Once full abduction and elevation of the arm have been obtained in the lying-down horizontal position, it may be definitely stated that it is only a question of time before full movement will be obtained in the upright vertical position. This result, however, can only be achieved gradually, and progress is accomplished by slowly elevating the head and shoulders of the patient either on pillows or by means of a special couch. Each elevation is regarded as a stage in the re-education process, and perfection of movement must be obtained at any one stage before proceeding to the next highest one. Even if the difference in elevation be only a few inches, it may be too much at first for the weak muscles.

It is wise to begin each daily period of exercise in the horizontal position, and gradually to work upwards to the highest elevation previously reached. The muscles are by this means enabled to accommodate themselves to their load, better results are obtained, and initial disappointment to the patient is avoided.

Methods of Dealing with the Disablement.

In the old-standing type of stiff-shoulder the problem has to be approached in two ways: firstly, to gain the patient's confidence that curative, or rather ameliorative, procedures are possible; and secondly, to place the affected muscles during treatment in such a position that their work begins at a minimum. Mackenzie rather aptly calls this the zero position, and Professor Arthur Keith has named it the minimal load position. It may be stated that the patient's mind has to be stimulated as to the value of personal effort, and through his mind his muscles have to be re-educated to enable them to regain as much of their lost power and coordination as possible. Misdirected effort resulting in spasm must be constantly avoided, and in this field of activity there exists plenty of scope for both physical and psychical re-education. It is not pleasant to see

the attempts which are sometimes made in these cases of stiff-shoulder to diagnose and treat the condition, the rough handling, the struggle between patient and surgeon, the abortive attempts at passive movement, the movement under an anæsthetic, and the last condition remaining sometimes worse than the first. To examine a wasted shoulder after months or years of massage, electricity, and passive movements, and to find almost total absence of voluntary movement with a partially subluxated head of the humerus is to realise the limitations in these cases of many of our modern methods of treatment.

While drawing attention to what is regarded as a serious omission in the routine treatment of these patients, it is not implied that in skilled hands successful results have not followed the combination of other methods, such as, for example, the electrical treatment so strongly advocated by Bristow. It is suggested, however, that more rapid and beneficial results would follow if this positional aid to treatment were more universally adopted. It would scarcely seem necessary to point out—if it were not such a frequent occurrence—that all attempts at after-treatment of a stiff-shoulder in the sitting or standing-up position with the arm hanging by the side are contra-indicated as tending to perpetuate the disability, and to discourage the patient from attempts at voluntary movement.

Conclusion.

During nearly five years' war service, and while serving on medical boards for the Ministry of Pensions, I have seen numerous cases of shoulder injury whose after-treatment had, in my opinion, been carried out without due attention to anatomical principles of muscle rest and muscle re-education. By the kindness of Sir Robert Jones I was enabled to see and treat many cases of this nature while in charge of the Muscle Re-education Department at Alder Hey Military Hospital, Liverpool. My belief in the efficacy of the method of treatment now formulated was definitely strengthened by the results obtained there. It is considered that if voluntary movement in a correct anatomical position could have been combined during the war with the massage, electricity, and passive movements so extensively practised, the resulting civil inefficiency and consequent list of pension recipients would have been considerably reduced.

That active movement leading directly to a gradual return of previous full working activities is the ideal aim of all forms of treatment in this class of case would sometimes appear to be forgotten; too much is often done for the patient, and he is allowed to do too little for himself. Where opposing muscles have become contracted and shortened, or where peri-articular adhesions of a minor degree have occurred in the surrounding structures, the patient's own vigorous volitional efforts are the best means of gradually stretching the contracted opponents or of breaking down the adhesions. The use of force and an anæsthetic may be essential if time is an element, and if painful passive and voluntary movements can afterwards be borne by the patient; but I believe that better results will be obtained if treatment on the lines above indicated can be gradually carried out. Once movements have been obtained in the lying down position and gradually increased these may be strengthened, and final complete mobility of the joint obtained, on the lines of the active gymnastic exercises ably carried out by Colonel H. E. Deane, R.A.M.C., at Croydon.

By means of this paper it is hoped that the value of early splinting of the arm in an abducted position with a recognition of the value of the horizontal posture as an aid to any form of treatment, may be fully realised, and some little advance be thus made in the treatment of a notoriously difficult condition. Evolution and the adoption of the upright attitude are responsible for more than one of our modern difficulties of treatment.

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RESIDENTIAL ANTE-NATAL AND POST-NATAL TREATMENT

AT THE LONDON LOCK HOSPITAL FOR WOMEN.

By G. W. RUNDLE, L.R.C.P. & S. EDIN.,

HOUSE SURGEON, LONDON LOCK HOSPITAL FOR WOMEN.

OWING to the great importance of ante-natal and post-natal treatment and the interest attaching to the excellent results which have been obtained at the London Lock Hospital for Women, I venture to submit this short communication on cases delivered during the last 21 months. There have been 168 pregnant women delivered in the hospital during the above period; of these 92 were cases of syphilis and 76 were cases of gonorrhoea.

Syphilis.

Of our 92 cases of syphilis 5 babies were stillborn and 9 died in the early weeks after birth, the remaining 78 doing excellently.

The syphilitic cases admitted can be divided into six classes: (1) cases admitted late in pregnancy with marked clinical signs of generalised syphilis; (2) cases admitted early in pregnancy with the clinical manifestations of generalised syphilis; (3) patients admitted early in pregnancy with a primary sore as the only sign and a negative Wassermann; (4) cases admitted late in pregnancy with a primary sore and a negative Wassermann; (5) cases who had had a full course of treatment before they became pregnant; (6) cases admitted with no clinical signs, only a history of miscarriages, and giving a positive Wassermann.

Our bad results, we found, all belonged to Class 1. The babies in all the other classes did splendidly. It is impossible to say how many of the children born alive were (1) healthy, (2) syphilitic, as the Wassermann reaction of the umbilical blood proved paradoxical, and that of the infants' blood was almost invariably negative a few days after birth. It was found, as Mr. J. E. R. McDonagh had previously shown, that the blood does not become positive much before symptoms appear.

The Treatment of the Mothers and Infants.

A few of the infants were premature and had to be reared in incubators. In the treatment of the mothers two facts stood out: (1) the excellent manner in which they withstood large doses of arsenic and mercury right up to full term, when these were indicated; (2) the extraordinary tonic effect of treatment. Although most of the women on admission had stomatitis, which was not infrequently aggravated by the arsenic and mercury used subsequently, it proved no bar to energetic treatment owing to the readiness with which it could be kept in check by intramine. It was found that one or two injections of intramine would permit of the assimilation of much more mercury; in some cases as much as 10 gr. of pil. hydrarg. were taken daily with impunity, though previously signs of intolerance to the drug had been manifest. Our successful results were, undoubtedly, in no little part due to the incorporation of intramine in the routine treatment.

The arsenical preparations used were neodiarsenol and novarsenobenzene.

The modes of mercurial administration were pills by mouth, intramuscular injections of mercury (grey oil), and cyanide of mercury intravenously. The last method was employed at Mr. J. Ernest Lane's suggestion. It is interesting to recall that Mr. Lane commenced using cyanide of mercury intravenously as long ago as 1896, during which year he administered over 1000 intravenous injections, using the concentrated method, in a 2-0 c.cm. syringe. Thus the intravenous administration of concentrated solutions is not as novel as it is usually thought to be.

The details of this mercury cyanide treatment are as follows:—

One intravenous injection of a 606 substitute and five intravenous injections of a 1 per cent. cyanide of mercury solution made with double distilled water are given weekly, the initial dose being 10 minims, and this is increased to 15 minims and then to 20 minims or more if the patient shows no signs of idiosyncrasy, such as abdominal pain; this

occurred in only 3 per cent. of cases treated by this method. The injections are continued for a course of eight weeks, and then a month's rest is given before starting another course. If the patient gets gingivitis, or loses weight, appropriate intervals of rest are given.

The amount of the mercury cyanide tolerated varied very much, one patient of 9 st. weight could take 50 minims daily intravenously without ill-effects. It was owing to the tonic effect of the treatment on the mothers that Mr. Charles Gibbs urged that the infants should be suckled whilst the mothers had a course of 914. The infants were placed to the breast immediately after the mother had her injections. This proved an enormous success; the infants' progress was better than when they themselves had intramuscular or intravenous injections of 914. If for any reason a mother could not suckle her baby novarsenobenzene was given intravenously to the infant.

A word about intravenous injections may be of interest. The external jugular vein was the site chosen; this vein, as Mr. Gibbs has often shown at his demonstrations at the London Lock Hospital, is generally to be preferred to the scalp veins or the superior longitudinal sinus through the anterior fontanelle. The child is placed in the horizontal position, its head rotated to one side and firmly held by an assistant; when the child cries the vein distends, and the needle point is then inserted. This site is convenient also for taking blood for Wassermann tests.

As to dosage of 914, Mr. McDonagh's standard for infants of a milligramme per pound weight was the initial dose used; this dose was increased as the child advanced in weight. Four premature infants were successfully reared in our electrical incubators, one baby weighing only 3½ lb. when born. The infants were fed on the four-hourly system—that is, five feeds in the 24 hours—and an eight hours' rest at night for both mother and child; the mothers thus got their natural sleep, and so secreted more milk.

At first there was some difficulty in getting the mothers to feed their babies, which, being in many cases illegitimate, were looked upon as encumbrances, but owing to the foresight of Mr. Gibbs prizes were offered periodically to the mother whose baby put on most weight. This competition quickly produced the desired results. When a mother left the hospital she was requested to report immediately she became pregnant again, as it has been found that the birth of a healthy child can only be guaranteed if the mother is treated throughout each succeeding pregnancy.

Our experience is that if syphilitic pregnant women would come up for treatment early enough 100 per cent. of the children would be born alive.

Gonorrhoea.

Considering how profuse was the discharge in most of the gonorrhoea cases treated and delivered in the hospital it is surprising that no complication, beyond an abscess in Bartholin's gland, was met with; pregnancy might have acted as a safeguard, but much of the success was undoubtedly due to the regular douching and swabbing out with Milton, recommended by Mr. Lanc. This preparation is a strongly hypertonic saline solution, containing free hypochlorous acid in unusually high proportions; it is non-toxic to the tissues, and is a rapid solvent of pus and mucus. We use it, a tablespoonful to a pint, as a vaginal douche, and half a teaspoonful to a pint for bladder and urethral irrigations in cases of urethritis; we use it also (strength 1 in 10) for irrigating Bartholin abscesses and bubos after incision with most gratifying results.

It is most satisfactory to report that not a single case of ophthalmia neonatorum has occurred in the cases born in hospital, a result which redounds to the credit of the nursing staff. The moment an infant is born its eyes are washed with a 1 per cent. solution of silver nitrate, and if the eyes appear to be a little inflamed a day or two later collosol argentinum (1 in 2000) is used as an eye douche, as it is less irritating than silver nitrate.

Collosol argentinum is, in our experience, the best local remedy for cases admitted with gonorrhoeal ophthalmia.

1 Brit. Jour. Surg, vol. III., No. 9.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on June 4th, Mr. J. D. MALCOLM, the President, being in the chair.

Traumatic Laceration of Pedicle of a Fibroid.

In the absence of Dr. PHILIP TURNER Dr. HERBERT WILLIAMSON read his communication on a case of Traumatic Laceration of the Pedicle of a Fibroid, following a bicycle accident. A woman fell off her bicycle on to her left hip, which was bruised, and she was taken home in a bath-chair. The following day she had a rising pulse; the abdomen was tumid, with dullness in the left flank, and a hard tumour was felt rising out of the pelvis in the mid line. The diagnosis made was intra-abdominal hæmorrhage, probably connected with a calcified fibroid, and a laparotomy was performed 24 hours after the fall. The abdomen was found full of clots and blood, and on raising a hard, calcified, pedunculated fibroid attached to the fundus of the uterus the pedicle was found to be torn and bleeding, and was removed. The bleeding of two small arteries was checked, and the wound in the fundus closed. The patient made an uninterrupted recovery.

Rupture of the Uterus.

Dr. J. FORD ANDERSON described a case of Rupture of the Uterus followed by Recovery.

Mrs. E., aged 33, a 4-para (one miscarriage), was sent to a maternity institution, in a collapsed condition and losing blood freely, by a doctor who had been called in and had found her in labour, with the feet of a fœtus of approximately four months presenting. He said that there had been no contraction of the uterus, but expression and traction had been used, and that after the easy removal of the fœtus he had discovered a tear of the cervix extending outwards on the left side. The doctor stated also that he had removed the placenta "with the fingers," and in doing this had found coils of intestine lying in the uterus. Dr. Ford Anderson saw the patient for the first time 14 hours after delivery, when she was still extremely collapsed, and on examination under anesthesia he found a coil of intestine in the uterus and a transverse rupture 3 to 4 inches long at the fundus, quite independent of the tear of the cervix. Operation was deemed inadvisable in the patient's collapsed condition, so the bowel was replaced under anesthesia, and contraction of the lax uterus being stimulated by pressure on the fundus, the uterus was packed with sterilised gauze. Thirty hours afterwards the packing was changed, and 30 hours later the gauze was finally removed. The patient was given pituitrin, morphine, saline solution per rectum, and douches of 1 in 320 lysol, as well as oxygen inhalations. From the first there were swelling and tenderness in the left iliac region, and during the first few days the temperature varied from 103° to 104° F.; the lochia were fetid. By the eighteenth day the cervical and uterine tears had healed and discharge had almost ceased; pyrexia and evidences of left pelvic cellulitis were still present, when, on the twenty-fifth day, the patient insisted on leaving hospital. A pelvic abscess afterwards had to be opened, but two months later she was completely well.

In Dr. Anderson's opinion convalescence would have been much speedier but for the cervical tear. He said that probably the majority of medical men would hold that in these cases operation offers the best prospect of cure, but it was not considered possible on account of the extremely bad condition of the patient, and the procedure adopted was carried out with but little hope of success. As a result of the present case, and after reading Dr. Herbert Spencer's account in the Obstetrical Society's Transactions for 1900 (Vol. XLII.) of four cases successfully treated by packing with iodoform gauze, Dr. Anderson was inclined to modify his views, and would be interested to know if Dr. Spencer still adheres to the opinion then expressed.

In the course of the discussion on Dr. Ford Anderson's paper Dr. FLETCHER SHAW recalled an article in which Dr. W. E. FOTHERGILL had collected a series of cases of ruptured uteri at St. Mary's Hospital, Manchester, and had concluded that in general operation was advisable.

In his reply, Dr. FORD ANDERSON read a letter from Dr. Herbert Spencer expressing the opinion that rupture was usually best treated by packing, as the patients were as a rule too ill to stand a hysterectomy.

Dr. W. FLETCHER SHAW and Dr. A. BURROWS read a paper on

Wertheim's Hysterectomy for Advanced Carcinoma of the Cervix made Possible by the Use of Radium.

Dr. Fletcher Shaw said that the greatest advance hitherto made in the treatment of carcinoma of the cervix was the general adoption of Wertheim's operation in place of the old-fashioned vaginal or pan-hysterectomy. The next great advance was the discovery that radium acted beneficially on the growth. Although on some types of growth and in some situations radium had little effect, in carcinoma of the cervix its action was wonderful.

The first time he had the opportunity of observing this action was in 1914, when an inoperable growth of the cervix with a secondary pelvic mass the size of an orange, in a patient 53 years of age, yielded to radium treatment (three applications) in a remarkable manner. At the end of 12 months there was no growth or mass to be felt; her general condition had greatly improved and she was free from pain, but, unfortunately, the pelvic mass reformed and continued to grow in spite of further applications, and the patient died at the end of the second year. Since that time Dr. Burrows had treated a large number of cases with radium. A large percentage showed a temporary marked improvement, many even complete local disappearance, but in no case of Dr. Fletcher Shaw's had the improvement lasted for more than one year, even with repeated applications. However, the combined treatment by radium and subsequent operation had given good results. In an inoperable case seen by the speaker in November, 1916, the application of radium was advised as a palliative. Three months later, after two applications by Dr. Burrows, the cervix had contracted to little above normal size, had lost all friability, and did not appear to be fixed, so it was decided to attempt operation. The ureters were separated from the adjacent and partly surrounding hard tissue only with the greatest difficulty, since the growth had contracted down under the influence of radium into a smaller mass as hard as cartilage. Dr. Fletcher Shaw had last seen this patient over three years after the operation, and she was then very well, doing all her housework and putting on weight. When he first saw her he did not think she could live one year. Since that date he had operated upon 13 other patients with carcinoma of the cervix too advanced for operation when first seen, but apparently operable two months after the application of radium. In six of the cases he had to abandon the operation owing to the impossibility of separating the ureters or bladder from the hard tissue which had replaced the growth, but in the remaining seven cases he was able to do a complete radical operation.

Dr. Fletcher Shaw then gave details of these cases, all women over 38, of whom five were very well respectively 9 months, 14 months, 19 months, 21 years, and 31 years after the operation. Unfortunately all these cases had been done during the war, and several of the specimens had been lost before examination. In case No. 7 no trace of malignant tissue could be found in the cervix, only in one of the glands removed with it. As all the cases were considered inoperable on first examination, the application of radium evidently definitely increased the operability.

Dr. BURROWS then read the part of the paper concerned with the methods employed at Manchester in radium treatment and with the estimation of the proportion of inoperable cases of carcinoma of the cervix likely to become operable after this treatment. Much depended upon the technique and the quantities of radium employed. Occasionally cases were rejected because they were too advanced, but their number was relatively small. The main points in treatment were that—

(1) Many tubes must be buried in the cervix and surrounding tissues; and (2) the largest possible dose must be employed. The large number of tubes (five or more) allow a big dose to be given with a minimum of local necrosis. Radium emanation tubes are small in bulk, and when screened by pointed tubes of platinum, the walls of which are 370 mm. thick, are easily pushed into place. Other metals are less convenient. Dr. Burrows usually placed a larger central silver screened tube up the cervical canal towards the upper end of the growth. No uniformly good results could, as a rule, be obtained by less than 120 mg. of radium metal, or millieines of emanation, for 24 hours. Larger doses might be employed and, if

necessary, the time correspondingly reduced. Cautery and curettage were not necessary, but the growth must be cleared as much as possible before the treatment and the part should be douched daily for six weeks after the treatment to prevent the formation of vaginal adhesions. Recently Dr. Burrows had treated some cases by Vio's method (burying and leaving in the cervix small unscreened emanation tubes), but was not yet disposed to give a definite opinion upon the method, although it appeared to promise even better than the older ones. When the question of operation following radium treatment had first been considered Dr. Burrows was not using the present adequate dosage, but the following details of his first 150 cases in Manchester, the last application of radium to which was given early in 1917, would indicate in some degree the possibilities of increasing the number of operable cases of carcinoma of the cervix by radium.

Group (a).—One has been well over four years. Four have been well between two and three years.

Group (b).—Eight cases were observed for periods of one to two years, during which they remained well, but have not recently reappeared for examination. Four cases similar to the last kept well from six to ten months.

Group (c).—Thirty-four did not return for examination after one year for treatment. This commonly happens because the patients are free of all symptoms and think that they are cured.

Group (d).—Forty-four had signs of relapse, but no symptoms for six months or more. Five were operated upon by Dr. Fletcher Shaw, and two by other surgeons.

This gave a total of 102 cases accounted for. The remaining 48 cases were benefited imperfectly or for less periods than six months, or not at all. Nearly half of the cases reported as well at the end of the year in his annual reports recurred subse-

quently. Dr. Burrows emphasised the fact that all these cases before radium treatment were regarded as hopeless and inoperable. He thought we might safely assume, making up (a) and (b) became operable, also, perhaps, 10 per cent. of group (c); 7 of group (d) were actually operated upon, making up a total of 28, or nearly 20 per cent. For the last 24 years, with improved radium, methods he had been able to report 20 per cent. of cases as being well at the end of the year. Nearly all of these had clearly become operable in the hands of an experienced surgeon, and for any special reason a few had not, the number would be more than 20 per cent., in which the improved cases, though not completely atrophied, had sufficiently receded for operation to be performed. It would thus seem that 20 per cent. of inoperable cases of carcinoma of the cervix of the uterus come within the range of surgery after radium treatment.

Mr. COMYNS BERKELEY congratulated Dr. Fletcher Shaw and Dr. Burrows on their results. He had had a large experience of radium treatment, but had found it difficult to follow up cases in London. He found that a dose of 250 mg. relieved symptoms, and that the palpable growth disappeared, but the ultimate result recurred appointing, as in most cases the growth had been attempted and abandoned two applications of 250 mg. internally. In one case in which operation had been attempted and abandoned after two years no trace of each had been given, either locally or internally, when the abdomen was opened for the cure of a ventral hernia. Mr. Berkeley confirmed the fact that the operation was very difficult after radium. He said that the duration of life after removal of the growth by operation was about three years in any case, so that as yet the effect of the radium was difficult to estimate.

Dr. DRUMMOND ROBINSON quoted a satisfactory cure by radium only in a woman of 54, who had refused operation. He said that most of the satisfactory cases reported by the Radium Institute were women past the menopause. He asked for details of time of exposure, and whether Dr. Burrows considered that an expert radiologist only should use the treatment.

Dr. AMAND ROUGH congratulated the authors on such excellent team-work. He recalled one case which he had treated at Charing Cross Hospital by a weak tube applied for 20 minutes twice a week.—Mr. W. GILBERT asked whether the interval between applications and the operation had a bearing on the difficulty of the latter. At the Middlesex Hospital radium bromide, not the metal itself, was in use.—Mr. GORDON LEX suggested that the intraperitoneal application of radium.—Dr. J. P. HEDLEY approved of radium if only as a palliative. On the advice of the Radium Institute he had removed some of the cervix so as to let the emanation get farther in.

In reply to Mr. BERKELEY, Dr. HEDLEY said he had no serious results, though in one or two cases he had had a small fistula or a leak through the bladder or

Dr. HERBERT WILLIAMSON agreed with Mr. Berkeley's views on the temporary value of radio-therapy in these cases. He wondered whether too large doses were being used, and asked about the possibility of using sub-lethal doses sufficient to prevent reproduction but not to kill the cell. He hoped a collective investigation would be undertaken on the subject.

The PRESIDENT asked Dr. Burrows for his views on the possibility of harm resulting from radium treatment.

In reply, Dr. FLETCHER SHAW hoped that in time the operative treatment of carcinoma of the cervix would be supplanted altogether. Concerning the time of interval, he considered that the operation only 24 hours after treatment would be less difficult than after two months.

Dr. BURROWS said that radium should be put in and around the cervix and not in the middle of the tissues. He considered that if more than three applications were required the treatment would be a failure. The time of exposure was fixed at 24 hours and the dosage was varied in screened glass tubes left in the cervix. It was difficult for an expert to say that he was essential, but he deprecated the lack of standardisation in the treatment used. Dr. Burrows gave various contra-indications against the use of radium. A really satisfactory cure was only obtained when no intra-abdominal operation was present round the growth. The risk of too early operation was that of sloughing. The therapeutic operation was actually about 1 cm. only, and this was an argument in favour of the use of many tubes. He had had no immediate bad results after the intra-abdominal use of radium, and had commonly placed radium tubes adjacent to blood-vessels with impunity. As to the dangers of radio-therapy, he had seen some bad fistulae, but had also seen terrible results after unsuccessful Wertheim operations, and it must be remembered that the cases were considered hopeless to start with. In women under 33 or 34 the results were not permanent. The question of sub-lethal dosage was entirely theoretical at present.

Mr. A. W. BOURNE described a case of

Spontaneous Rupture of the Uterus following Pituitrin.

The patient was a 12-year-old child born two years ago. Labour started at 4 A.M. on May 13th, but pains were sluggish during the day, and in the afternoon a sedative was given on account of primary inertia. At 5 P.M. the os was fully dilated, and the head was bulging the perineum, but as pains seemed ineffectual 1 c.cm. of pituitrin was given hypodermically. No apparent progress was made till 10 P.M., when the pains suddenly became extremely violent, and the patient collapsed. The head receded, pains ceased, and as the head was being born the patient died. A sharp cry and collapse. The head receded, pains ceased, and as the head was being born the patient died. A sharp cry and collapse. The head receded, pains ceased, and as the head was being born the patient died.

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Reviews and Notices of Books.

PELLAGRA.

By H. F. HARRIS, M.D., Atlanta. London and New York: The Macmillan Company. 1919. Pp. 421. 26s.

No one can open this book without being struck by the very large amount of correlated information it contains. It is not so much a record of original work as a résumé of the investigations of others up to recent date. The consistent aim of the author, as expressed in the preface, is to endeavour to state only what the facts seemed to warrant, and in doing so he has been actuated by a desire to arrive at the truth and to aid those who are interested in this most important subject. The historical account of pellagra for which the ancient literature, Spanish, French, and Italian, has been consulted, and especially that of its discovery and spread in the United States of America, is treated more fully than in any other work upon the same subject. It is stated, for instance, that insanity was unknown in the American negroes prior to the Civil War, and, since this race is known to be particularly attacked at the present day, it is assumed that they did not contract pellagra until the "sixties" of the last century.

The author's criticisms of the theories advanced and methods adopted by others are not always tempered with justice. This may be gathered from his scathing remarks upon the Pellagra Commission from this country under the leadership of Dr. L. W. Sambon, which did much to stimulate investigation upon the ætiology in 1910. It would have been acting much more in the spirit of the preface had the author laid stress upon the good work performed rather than drawn attention to the failures of this inquiry. In justice to Dr. Sambon and the late Dr. A. J. Chalmers, the remarks of Babes, of Bucharest, to the effect that "an English Commission, which had probably never before seen pellagra, on arriving in a region where the disease was common, and after seeing the pellagrins, and observing that there was a small gnat which produced a redness on the skin immediately after biting, promptly telegraphed to the world that the insect was the cause of pellagra," might well have been omitted. The same may be said of the strictures upon the work of Stannus upon pellagra in Nyasaland, in which grave doubts upon the correctness of the diagnosis are expressed on the grounds that the description does not tally with the author's own experience. In short, Dr. Harris confesses himself a confirmed zeist, and not open to consider the views of any other school of thought, for otherwise how account for the pseudonym *parapellagra*, in referring to the cases of "pellagra" without maize, described in the British Isles by Sambon, Chalmers, Hammond, Box, and others? Who, with an unbiased mind, after a study of the excellent photographs and paintings of these cases, could doubt that they represented undoubted examples of the disease?

But such being the author's views, it is not surprising that a full chapter is devoted to the history of maize; from this it appears that this cereal was originally an American plant and was given by the New World to the Old. In the year 1632 the first field of maize was planted in Italy, though it did not become a common food until the earlier years of the eighteenth century. The interval between its introduction and the first medical descriptions of the disease would appear to have been a very short one indeed. The possible connexion between the maize theory and the more recent views of protein starvation may be reconciled by the work of Rondoni, who has shown that the adrenals of animals fed on maize contain a much less active secretion than those of normal animals, and that adrenalin possesses the power of correcting the bad effects of a pure maize diet. As a supplement to the maize theory a very full account is given of the fungoid diseases which affect the corn cob, and it is noted that in Colombia a disease known as "pelatina," resulting

in loss of hair, teeth, and nails, is due to the ingestion of the maize smut *Uredo maydis*.

The section dealing with the pathological anatomy, and especially the minute changes in the central nervous system, is treated with a wealth of detail: the same may be said to hold good of the account of the symptomatology, to which over 100 pages are devoted. Under the term *parapellagra* or *pseudo-pellagra* are included a number of indefinite conditions, such as alcoholic intoxications, those associated with physiological misery, and pellagra of the insane—dermal alterations in the insane, which have been regarded as of a pellagrous nature, mainly because no other more plausible explanation was forthcoming. The section on treatment is curt, mainly for the reason that good feeding forms the basis of all treatment.

The book contains a complete bibliography of over 1000 references, besides useful appendices dealing with the germination of Indian corn, the Austrian and Italian laws on bad maize, and the eradication of pellagra; it is illustrated by seven plates demonstrating the inflammation of mucous membranes, and the minute changes in the central nervous system. This monograph may be confidently recommended to workers along the indicated lines as sincere, comprehensive, and informative.

X RAY PUBLICATIONS.

1. RADIOGRAPHY IN THE EXAMINATION OF THE LIVER, GALL-BLADDER, AND BILE-DUCTS. By ROBERT KNOX, M.D. London: William Heinemann. 1920. Pp. 64. 7s. 6d.
2. X RAY OBSERVATIONS FOR FOREIGN BODIES AND THEIR LOCALISATION. By Captain HAROLD C. GAGE, American Red Cross. Same publishers. 1920. Pp. 87. 6s.
3. THE SYSTEMATIC DEVELOPMENT OF X RAY PLATES AND FILMS. By LEHMAN WENDELL, B.Sc., D.D.S., University of Minnesota. London: Henry Kimpton. 1920. Pp. 78. 12s.
4. THE COOLIDGE TUBE: Its Scientific Applications, Medical and Industrial. By H. PILON, of Paris. London: Baillière, Tindall, and Cox. 1920. Pp. 69. 7s. 6d.

1. THIS is an excellent monograph on a difficult branch of radiography that is well worth the study of medical men generally as well as radiologists. It appeared originally as a series of articles in the *Archives of Radiology*, when we had occasion to refer to it, among others, in our periodical comments on that journal. Recent advances in technique have made it possible to gain reliable information from an examination of this region in a quite respectable proportion of cases, and Dr. Knox has rendered a good service in bringing the present position so clearly before us. Beginning with anatomical considerations, the author takes us through the pathology, experimental investigations, radiographic appearances, technique, differential diagnosis, ending with a record of cases and a résumé of the literature and general conclusions. One thing stands out clearly, and that is, that success is more or less directly dependent on powerful apparatus, perfect equipment, and very short exposures. Given these conditions, the X ray examination of this region passes into a new phase, with advantages to all concerned.

2. While the need for rapid and certain localisation of foreign bodies in the tissues is less pressing than it was not long ago, there are doubtless many radiologists and surgeons for whom the subject has a certain amount of fascination. The special feature of the method devised by Captain Gage is the provision of three intersecting lines which join three pairs of marks on the skin, and it is claimed that by these the position of the foreign body is more easily visualised than by any other system. Mechanical aids may be used also, but are seldom if ever necessary, and in his hands, at least, his own method has given an almost unbroken record of successful results. The system is worthy of attention by those interested in this branch of radiography.

3. If the information in this volume upon systematic development of plates was acted upon by those who carry on the dark-room manipulations, it is highly probable that there would be fewer occasions for "repeat" examinations, and, in addition, more cer-

REVIEWS AND NOTICES OF BOOKS.

THE LANCET.]

plete and satisfactory results altogether. There is little doubt that in many instances this very important part of an X ray examination is not treated with the care and attention which are given to the exposure of the plate; and yet careless manipulation in development can nullify the most skilful technique on the part of the radiographer. From the fact that this part of the work is often relegated to those whose knowledge of photography is limited, Dr. Wendell strongly advocates the use of the tank or stand method of development and giving more certain results and being less influenced by the personal equation. There is plenty of room for improvement in this branch of radiographic work, and Dr. Wendell's monograph will be a real help in its indicated directions.

4. This is a most useful book for all those engaged in the practical use of the X rays. The resulting radiation from the Coolidge tube does not differ essentially from that in the older types, but the construction and its management, and uses of the tube are so different and its possibilities so much greater, that even yet many of those who use a Coolidge tube for one purpose or another are only partially acquainted with the questions that arise from book answers most, if not all, from outside, and it either within the operator's mind or from the use of one of the most important radiological discoveries of recent years. The theoretical and practical aspects of the subject are dealt with clearly yet concisely and are well illustrated, drawings and diagrams being used where necessary. The all-important matter of the adequate protection of the operator receives its full measure of attention.

APPLIED ANATOMY AND KINESIOLOGY.

Second edition. By WILBUR PARDON BOWEN, M.S., Professor of Physical Education, Michigan State Normal College. Edited by Prof. R. TAIT MCKENZIE, Philadelphia, and New York: Lea and Febiger. 1919. Illustrated. Pp. 339.

LITTLE can be learnt from most of the ordinary textbooks on anatomy concerning the action of muscles, although without this all other knowledge of them is well-nigh useless. The object of this volume is to supply practical information as to how the various movements of the body are performed. Part I. deals with the structure of muscles. Part II. and III. deal with the mechanism of muscular control. Part II. and III. deal with the upper and lower limb respectively. The movements of each joint are first considered, then the muscles controlling the movements are indicated rather than described, the structure occupies but few words, and no mention is made of relations or nerve-supply. The latter could be added with great advantage, particularly if traced back to the spinal nerve roots. Posture, fundamental movements, and gymnastic movements are being fully described. It is a pity, however, that each body nomenclature, not to adhere when using Swedish nomenclature, is a poor substitute more rigidly to the usual order of words. "Raising arms forward," for example, is a poor substitute for "Double arm forward raise." The muscle action involved in games and sports affords most entertaining and instructive reading. Defects of the foot are fully dealt with, though the essential necessity for training the quadriceps in the treatment of flat foot is overlooked. Collin Mackenzie's description of Duchenne's looked, mentioned but passed over almost throughout. Part IV. is mentioned being accepted almost throughout. Part V. describes dealing with the muscles of the trunk, and the muscular teamwork among the muscles, and the industrial action in gymnastics, games, sports, and industrial occupations.

The book throughout is well written in an interesting manner. It is "applied anatomy" of the muscles; the application is given in essentially practical form, and should be invaluable to all those who propose to take any part in physical education or remedial work. The illustrations are numerous and well reproduced. It has

been a source of regret to many who are interested in the working of the human frame that hitherto so little of interest has been written on the action of muscles. Here, more fully than elsewhere, will the reader find food for thought. Where else, for instance, will he find the solution to the problem, "What advantage is it to the washer-woman to have the tub and board placed below the level of the hips? Above it? What determines the best height for it in any case?" This is a typical question taken from one of the tables throughout the book, which appear at frequent intervals throughout the book.

JOURNALS.

Journal of Industrial Hygiene. London and New York: Macmillan and Co. 21s. per annum.—A number of articles in recent issues of this journal have dealt with the importance of the social side of industrial medicine. Indeed, nothing is more remarkable in the pages of this up-to-date publication than the social tone of its contents; in this respect it differs from other medical professional activity come to be considered at no touch with the daily life of patients than where the environment of their occupations are to be countered by reduction in labour turnover and prevention of over-fatigue. This review of the later numbers is in the nature of a running commentary upon the more conspicuous contents.

In the December issue Mr. C. A. Lauffer points out that there are two classes of health hazard in industry, one concerns each worker personally, and the other the general community through the employer. In the first class he groups hazards arising from (a) poisons, dusts, fumes, gases; (b) heat, humidity, ventilation; (c) lighting; (d) crowding; and (e) accidents. In the second (a) decreased production; (b) labour turnover; (c) compensation expenditure. He points out that medical care started at the factory must extend to the home.

"An employee spends only eight or nine hours in industrial service, in his home life, however, and incurs health hazards. The superior factories make these industrial systems more hygienic, many modern factories make them more crowded and worse ventilated, many public health stations are boarding-houses, hotels, restaurants, and churches, most of which are crowded and worse ventilated. To be consistent, homes, hotels, restaurants, and clubs, &c., in which employees spend many hours than in the factory, should be scrutinised and health impairment, and routes of infection from communicable diseases."

The detection of early signs of diminished health and loss of tone can only be carried out through an industrial organisation with an effective clinic.

"A worker who is constantly fatigued from any cause, or any combination of causes, will lose time now and then from sheer exhaustion. The fatigued worker is more susceptible to infectious diseases, from which he makes a retarded recovery; since he has more stupid, and from which he recovers slowly, since he has accidental injury, and we wish injury plus sickness to deal with. It is naturally reverts to the industrial clinic to find out the sources of fatigue, to evaluate the factors that contribute to the fatigue total, and to facilitate the recovery of the individual in the manner indicated by its findings of the individual in the same number. The case thus set forth calls for careful physical examination of applicants for work."

"The most capable and dependable workmen are those who are healthy, physically competent, and are assigned to tasks they like, and know how to do easily and well. Men, working under pleasant conditions void of undue fatigue and hazards to the best paid, and least, are the best produced and consequently the most valuable and healthiest of employees. Industry is now striving to procure such workmen."

Dr. Selby then proceeds in the light of his own experience at Toledo, Ohio, to describe how the initial physical examination should be conducted. His method is good and must go far to reduce labour-turnover. The same subject, whose examinations were nowhere, but were for the purpose of fitting who was fit to work, even the physically handicapped, into the work for which they were best adapted, and to work at all. She maintains further that the sum total of scientific knowledge is that doing should contribute to the sum total of purpose served is that and tells how by a well-thought-out plan purpose served is that and is classified at a place. Another purpose maintain health and educating each worker as to how to maintain health and factory processes is essential. The industrial physician has a double duty, one to the applicant for work by warning the unfit and by informing the healthy; the second to society, and here

success is lost "if he fails to build into it better units as the result of his work." Ideas on medical examinations are suitably checked by reference to a paper in the January issue by D. R. Kennedy and R. M. Nenstadt, who point out that industrial medicine must not deteriorate into a "society for the prevention of men earning a living," but must concern itself with improving personal hygiene by spreading health knowledge and with medical research.

"The factories and the schools are the easiest and best centres through which the largest number of citizens can be reached, and therefore become not only the most important strategic point in any campaign of general education, but also the place where responsibility for such education and for remedial work becomes centred. . . . Industry, or rather the industrial organisation, cannot shirk its responsibility in public health save by defying and neglecting its clear duty as an organic constituent member of the public—a group citizen of the community."

Industrial medical service must be established by industry and given a position in each concern worthy of the work which needs the best of physicians and the best that is in them. The scope of work within the factory to maintain the health of an important productive group of citizens is extensive; but the capable physician—

"will not confine himself to the four walls of his office, or even to the gates of the factory yard. He will, on the other hand, consider his company as but a unit in the community, and will tackle the social problems of the home, the school, and the streets with a realisation of their interdependency."

Two long articles appear in the numbers for February and March from the pen of Dr. Hans Zinsser, who summarises in a useful way the control of infectious diseases; the title adds "in industrial communities," but there is nothing in the articles in question which has a particular industrial bearing, unless we look upon every community to-day as an industrial unit. Nevertheless, the industrial surgeon, engrossed in his own work, will find here information which may be of use to him from time to time.—Quite different is Dr. A. C. Burnham's short but suggestive communication in the issue for May on surgery and increased production. Surgeons have previously taken comparatively little consideration of the element of time in the treatment of injury, or of the element of productive capacity. First, he calls for preventive surgery—i.e., accident prevention—then for skilled treatment at the earliest opportunity; last, for treatment directed to minimise the period of disability and to conserve industrial utility. He points out the need for functional re-education, a branch of surgery which the war has practically invented; and then of vocational education, where previous work cannot be resumed. The rehabilitation of the industrial cripple, who is always with us, is a social duty as important as that of helping the crippled soldier, though, and especially to-day, the element of public gratitude is less apparent. Through the restoration of the worker production may be increased and undeserved poverty decreased.

The journal continues to publish an excellent abstract of current literature dealing with industrial hygiene, which must bring to its readers the growing importance of this branch of medical work. It has now completed its first year of life, commencing a second volume with the May issue. The high standard aimed at has been so far fairly well maintained, but we note a tendency to publish short and somewhat fragmentary articles which do not contain new scientific facts, and at the best can only be looked upon as intended for propaganda.

Journal of the Royal Naval Medical Service. January and April, 1920.—During the war some 20,000 men of the navy became ineffective through disorders of psychology, and to the Naval Medical History of the War, Temporary Surgeon-Lieutenant Thomas Beaton, O.B.E., M.D., has contributed a very valuable paper discussing the nature, treatment, and prevention of their maladies, which were more numerous every year, and always increased most rapidly in summer when the menace of the submarine threatened most. These disorders are, Surgeon-Lieutenant Beaton considers, the outcome of the disturbance of the normal relation between the individual and his environment, and that this may be thoroughly comprehended his paper must be studied. But his analysis is so complete and interesting that it is expedient to attempt a brief summary.

Mental stress, if severe enough, results in disintegration of mind. Mental stress is set up by conflict in the mind, by emotion, or by exhaustion, separate or combined. By conflict; if action must be taken the nature of the action is a matter of choice. Ordinarily such a course is fairly easy, but at sea and in war the inherited, intuitional, and trained impulse to self-protection may have to be ignored, energy will be required to push that impulse aside, and in the mind there will be a persisting unsolved conflict that will cause stress. Emotion, as fear, joy, pity, energises the mind to do something; that emotion may have to be repressed, and in the process the mind may be decomposed. Exhaustion, where there is long-continued conflict or repressed emotion, always comes upon the mind, but it arrives sooner if the person is fatigued or debilitated.

Conflict is diminished in the mind by education in conduct—i.e., habit formation—but landsmen joining the navy during war have to make a readjustment to a puzzling, too overwhelming for some of them, who in the attempt may go mad. These failures can be prevented by careful selection of recruits of sufficient ability and character, as was attempted later in the war by the American naval physicians, by inciting the recruit to adapt himself, and by showing him how completely the nation's purpose in war is also his own ("propaganda"). Of the men who broke down, 75 per cent. were mentally unstable in their previous lives; we observe what expense might have been saved by employing trained psychologists on the weeding-out. The sailor's life being more monotonous than the soldier's makes mental failures more likely. Disorder of mental function is evidenced by alteration of conduct, and correct conduct can only be defined by comparison with its opposite, which makes a man a bad shipmate or a bad messmate. Good conduct must be chosen as the preferable course by the will of the subject, who is strengthened in his choice by the imminence of disciplinary rewards and punishments. So the mind may be overpowered and the person, who has now become irresponsible, acts automatically—i.e., unconsciously. All people of bad conduct must be removed from the ship; among them are some half-malingers who get out of the strain a little easily, but if kept on board they become insane, and by their loss the service becomes more efficient. It is not always difficult to detect the malingering, for he is anxious that his insanity shall be recognised; the real patient insists that he is all right.

The disorders that occur Surgeon-Lieutenant Beaton classifies as the psycho-neuroses in which auto-criticism exists and the patient knows there is something wrong, and the psychoses in which he is not aware of his plight. Their causes are three: actual exhaustion of the organism—the confusional states; persistence of the activity of the defence mechanisms; the anxiety neuroses which are partially readjusted, as in hysteria and shell shock. The degree of stress decides whether breakdown will occur; and Surgeon-Lieutenant Beaton holds that the variety of breakdown depended on the individual. There were some 11,000 cases of what was called neurasthenia, cases without local physical functional disability, not without auto-criticism. The name, in his view, made no imputation of insanity. Ninety-five per cent. were cases of anxiety neurosis, fear for oneself or for others involved with one, and for whom one was responsible. In the navy the incidence was wide; so many men have responsible jobs, small in themselves, yet essential in the functioning of the ship, that consequently men are as prone to develop this neurosis as officers. Officers suffer more in the army in comparison with the men. The anxiety, it was found by Surgeon-Lieutenant Beaton, might be outside the service, in relation perhaps to the family. One per cent. recovered completely and returned to service, 85 per cent. were looked after by friends, only 14 per cent. were certified. Of 100 consecutive cases, it was found that in 50 the thyroid was enlarged; in these and 20 others there were symptoms of hyperthyroidism, and in 30, mostly men above 40, vasomotor disturbances of the class due to disturbed sympathetic innervation.

There were no cases of Graves's disease, but persons predisposed to over-activity of the thyroid were liable to break down under very slight stress. Mental patients recovered in far larger proportion than is usual; this being due to their coming very quickly under treatment. Shell shock was very rare, and only occurred among men in action ashore. The shell-shock syndrome, as Surgeon-Lieutenant Beaton observes, does no good service to a man in action, if on board a ship. Ashore, if he becomes paralysed he drops into cover, and the battle passes away from him and he is protected. At sea he remains in the battle, and paralysis will only prevent him from escaping if the battle goes against his side and his ship sinks. Shell shock is not a protective but a destructive syndrome afloat, so it did not occur. The mental health of the service, he says, rests in the hands of the executive officers. The "happy ship" has little crime and few mental breakdowns. "Fortunately, many naval officers become practical psychologists," and are able to get their men's confidence and make them efficient.

This article of Surgeon-Lieutenant Beaton's, if read and understood by the service in peace-time, should help to diminish the mental breakdowns of the next war. He has put his service as a temporary officer in the navy to good use, and his description of the severity of service in the Fleet will make every reader more grateful than before to the splendid service which stood the strain and saved us.

LITERARY INTELLIGENCE.—Mr. William Heinemann announces the approaching publication of "Venereal Diseases, their Clinical Aspect and Treatment," by J. E. R. McDonagh.

Quotations from Doctors: No. 2

"The many cases of ovarian neuralgia that I have encountered in my practice during the past fifteen years have been treated with hot applications of

Antiphlogistine

I frequently use a weak solution of menthol over the part . . . then I dry the field and apply Antiphlogistine. The analgesic effect is instantaneous, and the general result is highly satisfactory to myself and my patients.

In dysmenorrhea I adopt the same procedure, making the applications over the symphysis, &c. Antiphlogistine always serves me well."

THE DENVER CHEMICAL M'FG. COMPANY, LONDON, E.3

Four Authorities:

1. "I have very clear evidence of the fact that those who develop such diseases as are mentioned in the following list have suffered for some time from chronic intestinal stasis: non-specific arteritis obliterans, angina pectoris, rheumatoid arthritis, Still's disease, tubercle, exophthalmic goitre, adenoma of the thyroid, Addison's disease, Raynaud's disease, diabetes, ulcerative colitis, microbial cyanosis, dementia praecox, pernicious anaemia, disseminated sclerosis, paralysis agitans, infective endocarditis, and in many instances alcoholism and the drug habit, and numerous forms of skin disease."

Sir _____

"The Lancet"

December 20th 1919. pp 1123.

2. "Liquid Paraffin, or Russian Mineral Oil, is the agent which, by common consent, is pronounced the most satisfactory in the treatment of these cases: i.e. Intestinal stasis."

W — S — B —

A.M., Sc.D., M.D.

"Chronic Intestinal Stasis"

Woman's Medical Journal
January 1914.

3. "In the New Utopia, where stasis will be regarded as a sin more sinister than sedition, and surfeit more unseemly than schism,.....the function of the police will be the purveying of paraffin,....."

Dr _____

"The Operative Treatment of
Chronic Intestinal Stasis" (1918)
p.p. 263.

4. "The Silvertown Company, in particular, are manufacturing a fine standard product which answers all B.P. demands perfectly."

"The Lancet" 2nd October 1915.

IF THE UTOPIAN POLICE ARE AS WELL TRAINED
AS LONDON'S, THE ONLY PARAFFIN LIQUID THEY
WILL ADMINISTER WILL BE SILVERTOWN'S PERFECT
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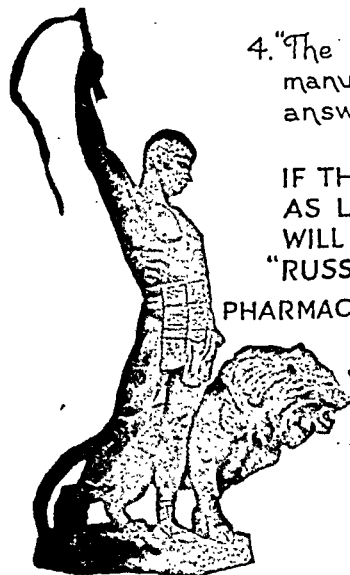
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THE LANCET.

LONDON: SATURDAY, JUNE 12, 1920.

The People Desire to be Deceived.

THE parting by the public with money to specious advertisers who promise to cure disease or otherwise to promote the health of their clients, is a world-wide and world-long happening, to the eternal puzzlement of medicine. But in the United States of America, the Government empowers itself to stop the trade of the vendor of fraudulent nostrums in certain directions. To the extent that it does so America is advancing civilisation. The action taken in the United States during the past few years is summarised in a booklet issued by the American Medical Association, entitled "Medical Mail Order Frauds," a title which more or less explains itself, and which details methods so familiar to our readers that only the briefest recapitulation of them is called for. The medical mail order business is initiated by advertisement, in response to which persons affected, or believing themselves to be affected, by disease write to the advertiser. In reply a form is sent to them, which they return filled up with details of their symptoms as observed by themselves. Particulars of proposed treatment and demands for payment follow in due course from the proprietors of the nostrum, the suggestion, implied or expressed in some of the correspondence or advertisements, being that the treatment represents the considered conclusion of a medical man. In a particular case described in "Medical Mail Order Frauds," instead of the letters being submitted to the discriminating physician—who, if he exists, may or may not be discriminating, but must have vague notions of ethics—they were passed on to girl clerks, who answered them from a book of models, or, as lawyers might call them, "common forms," furnished by their employers. Business was accelerated by division of labour, one girl underlining material passages and another picking out from the book of models such replies as to her might seem appropriate to the symptoms indicated by her colleague. Of course, if such a business enterprise as this is permitted to be carried on without interference, the manager of the institution who thus batters on the infirmities of his fellows is hardly to be blamed if, as success inflates him, he conducts his work through clerks instead of defrauding his customers personally. The trade is shown in "Medical Mail Order Frauds" to have been worth many hundreds of thousands of dollars yearly to its business-like organisers.

This particular "business" and others of a similar nature are, we presume, now wiped out so far as traffic in the United States is concerned, for in each case given in the pamphlet we are informed that a "fraud order" was issued. In connexion with the "fraud order" a further order "denying the use of the mails" is made, apparently either as a necessary accompaniment of the first order, or as an

addition rendering it more effective. The Post Office in America appears to be the prime mover in prosecutions where the use of the mails to assist in the fleecing of the public is an essential feature of the trade. The American Medical Association emphatically praises the efficient service of the United States postal authorities in protecting the public against "mail order medical fakers." It adds that this has often been done in the teeth of adverse political influences set in motion by the wealthy "fakers," and it highly commends the postal inspectors who have carried out the necessary investigations. This fact may be brought to the notice of our Postmaster-General with hope of imitation. For American virtues may damage this country seriously unless we in our turn become virtuous. A "fraud order" and "denial of the mails" may stamp out a dishonest and mischievous trade in the United States, but it will not prevent that trade from enjoying prosperity overseas. We have our own "mail order medical fakers," and there is nothing, so far as we are aware, to prevent enterprising Americans from adding theirs to ours. With the majority of the names of commodities given in "Medical Mail Order Frauds" we are not familiar, or have only observed them in the advertisements of American publications of an inferior type sold in this country. One name, however, is that of a commodity which, banned in the United States as fraudulent, is advertised with impunity in the United Kingdom. The exploiters of "sargol" are described by the American Medical Association as having been found guilty of fraud in America and fined \$30,000, after promising that their business should be discontinued. The fine was paid and on Feb. 27th, 1917, the Post Office Department issued a "fraud order" against the Sargol Company denying it the use of the mails.

But we find in our newspapers, some of them important and highly respected, advertisements of sargol during the month of May, 1920. The advertisements are similar in form and illustrative matter to those reproduced in "Medical Mail Order Frauds," and we give them gratuitous publicity. Under the headline, "How to Become Plump, Popular, and Attractive," they commence with the inquiry—

"Would a little more flesh make you more stylish and attractive? Would 10 or 20 pounds more make you better satisfied with your personal appearance? If so you should try Sargol. It will make you nice and plump, give you greater strength, better health, and double your powers of endurance."

The evidence given in America was to the effect that sargol as sold there was made in accordance with a formula devised after a short consultation with one of the promoters of the business and between one of the promoters of the business and a man connected with the "private formula" department of a famous firm of pharmaceutical chemists. Sargol was made up by that firm at a price from 53 to 78 cents per 1000 tablets, and sold at the rate of \$25 a thousand, its composition being: Extract saw palmetto, 2 gr.; hypophosphite calcium, 1 gr.; hypophosphite sodium, 1 gr.; hypophosphite potassium, 1 gr.; lecithin, 1 gr.; extract nuxvomica, 1 gr. And that is the composition on which the public is invited to grow nice and plump and strong. Some of the constituents of sargol under that formula may be in some degree tonic, but none of them consumed singly or in combination could affect the weight of the thin or emaciated, without reference to the cause of their condition, or in the manner claimed by the advertisers.

On the question of whether the public should be protected generally from robbery by greedy advertisers who promise more than they can perform, we say nothing. With the designs even of fraudulent traders, so long as they only affect the purses of the credulous, we are not concerned. When, however, such persons pretend to cure disease, or to promote health by means which cannot achieve either purpose, we consider it our duty, in the interest of the health as well as of the pockets of the public, to call attention to the nature of the claims, and particularly are we interested when the claims of the advertiser are supported by testimonials and recommendations alleged to have been given by members of the medical profession.

The Clinical Diagnosis of Exudations in the Throat.

QUITE apart from its convenience, the establishment of any reliable diagnostic indications obtainable from a simple examination of the fauces, as opposed to a bacteriological examination in the diagnosis of different forms of throat illness, is welcome, inasmuch as it implies a more exact knowledge of disease. The amount of time, too, which may be saved by making a diagnosis from ocular inspection on the spot rather than by waiting for the result of a bacteriological examination may, as is rightly emphasised by Dr. H. DRINKWATER in an article on the clinical diagnosis of diphtheria and other exudations in the throat, which appeared in THE LANCET of May 29th, make just the difference between life and death if treatment be delayed until the report from the laboratory is received. Unfortunately, this is a practice which is too often followed, occasionally, in cases of diphtheria, with disastrous results, as is also the not uncommon mistake of ignoring positive clinical evidence, even when fairly patent, in view of a negative bacteriological finding.

Admitting the paramount importance of immediate clinical evidence, the whole question hinges on its reliability. As a correspondent suggests in another column, it seems too good to be true. Dr. DRINKWATER, in the article referred to, lays down certain data concerned with the naked-eye appearance of the fauces by which he claims that he can invariably differentiate between diphtheria and Vincent's angina, on the one hand, and other forms of sore-throat showing exudation, of which he instances follicular tonsillitis and influenza. Dr. DRINKWATER bases his claim upon an experience of over three years in a fever hospital serving the needs of a population of 80,000, in the course of which he states that in every instance his naked-eye diagnosis was confirmed by subsequent bacteriological examination. If this be so, Dr. DRINKWATER is to be sincerely congratulated, for we doubt if it can have fallen to the lot of many other observers, even if possessed of an equally wide experience of exudation throats, to have been so uniformly successful. The article is illustrated by a number of drawings which, allowing for an inevitable loss of definition incidental to their reproduction in print, serve to bring out the special distinctions on which Dr. DRINKWATER relies. The main proposition which emerges on careful perusal of the article is that on no single one of the six areas into which, for the purposes of clinical description, the author

divides up the fauces, will more than one patch of exudate be seen in the case of either diphtheria or Vincent's angina, and that if there be more than one the diagnosis of both of these two affections is negatived. At this somewhat sweeping statement we confess to a feeling of some surprise. Dr. KNYVETT GORDON, in a letter we published in our issue of June 5th, states that it is by no means uncommon in adults for diphtheritic exudation to commence at several points on the same tonsil, and thus closely simulate follicular tonsillitis in appearance. That diphtheria and Vincent's angina, moreover, should stand alone in presenting a single patch on the tonsillar area is hardly, we think, in accord with the experience of most observers. In follicular tonsillitis, it is true, the spots or patches are usually multiple, but cases are surely not uncommon in which a single patch is present on the tonsil and which as the result of bacteriological examination are classed as "coccal." These are the very cases which, though neither diphtheria nor Vincent's angina, are apt to so closely simulate the former as to give rise to difficulty in diagnosis. This form of throat, too, is sometimes met with in scarlet fever, the patch being usually confined to the tonsillar area. Dr. DRINKWATER admits that this peculiarity of distribution of the patches affords no guide to the differentiation of diphtheria from Vincent's angina, though he describes certain distinctive appearances in each of these affections which should prove helpful in diagnosis.

The special characteristics of the exudation which Dr. DRINKWATER regards as distinctive of diphtheria are the following: (1) It is raised above the level of the mucous membrane; (2) the edges of the deposit are sharply defined all round; (3) in colour it may be white and glistening, bluish, yellow, or spotted with black or red. Most observers, we think, will agree with the writer as regards the first and the last of these indications, but that the exudate is always sharply defined in its entire circumference we cannot agree, although this feature is very noticeable in the specimens of diphtheritic exudation (Figs. 2 to 7) depicted in the illustrations. It is by no means an uncommon experience in some of the worst cases of faucial diphtheria, especially when the palate is involved, to see the exudation merging into the pallid and cedematous mucous membrane without any line of demarcation whatever between them. We note with some surprise that Dr. DRINKWATER makes no distinction between an exudation associated with the Hoffmann bacillus and one in which the Klebs-Löffler organism is present. He classifies them both as diphtheria. The characteristic appearances of Vincent's angina are well described and should prove very helpful in diagnosis. The illustrations, too, bring out very clearly the points on which Dr. DRINKWATER relies, especially the longitudinal sulcus (Fig. 8) and the fading off of the lower margin of the patch (Figs. 9 and 10), an appearance which, by the way, is sometimes seen in secondary syphilis. It might be added that the characteristic lesion of Vincent's angina is, on the whole, more apt to suggest an ulceration rather than a true exudation, another point in which it resembles syphilis. Dr. DRINKWATER's article is deserving of careful study by anyone engaged in general practice, for even if one is not prepared to go the whole way with him and accept his propositions as infallible there is much in his teaching to inspire confidence in the clinical diagnosis of throat affections in circumstances where time is a matter of importance.

Annotations.

"Ne quid nimis."

A Great Appreciation.

THE dinner in appreciation of the services of the Royal Army Medical Corps and of the civilian officers attached to it during the war, a short account of which appears elsewhere, was an extraordinary recognition, spontaneous, unexpected, and generous of the medical work throughout five terrible years,—work, it should be added, which still remains active doing in every direction. It was, as Sir ALFRED KEITH said in his eloquent reply to the words of national thanks uttered by Lord MIDLETON, Mr. CHURCHILL, and Earl HARG, an outward sign that 60 years of hope and endeavour had at last reached fruition. For to-day, while the medical officers of the army have become, in every sense, the words, an integral part of all military plans and designs, they are also enabled to preserve close association with their civilian brethren. The bitter lessons learnt in the Crimean War, a mostly neglected, and an War

The bitter lessons learnt in the Crimean War, 60 years ago, were mostly neglected, were greatly regarded in the South African War, through the events of advanced command become the accepted wisdom of advanced communities. When SIDNEY HERBERT determined to ensure, during a later tenure of office, that the misfortunes which overtook our army in Russia, with its miserable absence of medical equipment, its total neglect of elementary hygiene, and its lack of nursing material, he and FLORENCE NIGHTINGALE began what it has been left to the statesmanship and science of the twentieth century to transform into ordered being. It was at SIDNEY HERBERT's suggestion that four supplementary commissions were instituted in connexion with the Royal Commission on the Sanitary Condition of the Crimean Disasters. These commissions dealt with the construction and sanitation of hospitals and barracks, with the condition of the Army Medical Department—for which HERBERT drafted a code of regulations, with the right keeping of army statistics, and with the provision of facilities for the proper education of the department. The ideals which HERBERT placed before himself are those which the Directors-General of the Army Medical Department, notably SIR ALFRED KEOGH and his successor Sir JOHN GOODWIN, have kept steadily before them, but it is not anything for this country to boast of that during the period of exactly 60 years, which elapsed between the opening of the Great War and the close of the Crimean War nothing was done worth doing, until the South African War again found us unready. We are not unmindful, however, in saying this, that medicine, preventive and curative, had vastly more to give, with all the Listerian doctrines behind it, than it could have given until the closing phases of the Victorian epoch. But the dinner to the Royal Army Medical Corps, at which the hosts included the principal statesmen and men of affairs who have presided over the War Office in recent times not only was a tribute of praise excellently directed, but a public pledge that for all future time no one will doubt that well-administered preventive and clinical medicine will win wars.

THE BIRTHDAY HONOURS.

THE Birthday Honours published last Saturday contained many names, and the notes which have appeared in the daily press upon the services rendered by those selected for notice show very well how various were the activities concerned throughout the war and the high level of the community. The members of the medical profession selected for honour include the following: Dr. James Dundas Grant, the well-known aurist, Mr. Arnold Lawson, who has done admirable ophthalmological work at St. Dunstan's, and Colonel William Taylor, formerly President of the Royal College of Surgeons in Ireland, receive the K.B.E. The honour of civil knighthood has been conferred upon Dr. Sidney Robert Alexander, many times Mayor of Faversham, Professor Frederick William Andrewes, F.R.S., pathologist to St. Bartholomew's Hospital, whose work in medical research Dr. Charles O'Brien Dr. Sydney Beauchamp, Dr. Charles Eduljee Banat-Harding, and Colonel Hormasjee Emdjee Banat-vala, I.M.S. (ret.), who was lately Inspector-General of Civil Hospitals at Assam. Dr. Beauchamp was medical adviser to the British Delegation at the Peace Conference, and the post was no sinecure during the epidemic of influenza. He was responsible for the organisation of West Park as a military hospital in September, 1914, and was its chief medical officer till its destruction by fire in 1916. Dr. Harding has been five times Mayor of Eastbourne, and recently received a promotion for his services in recognition of his impartiality, dignity, and efficiency with which he performed his onerous duties. Surgeon-Rear-Admiral George Albert Dreaper has been awarded the O.B. The Kaiser-i-Hind Medal has been bestowed upon Shamroo Ramroo Moolgavkar, principal medical officer to the Bikaner State, and Miss Millicent Webb, the lady-superintendent of the Dufferin Victoria Hospital in Calcutta. The Imperial Service Order of India has been bestowed upon Mahendra Nath Bhattacharji, personal assistant to the surgeon to the Governor of Bengal, and Egambaram Rangaswami Doss, the late chief attendant to the Medical College in Madras, has received the Imperial Service medal. The British war service has been recognised by the President of the French Republic in the persons of Sir Arthur Stanley, chairman of the British Red Cross Society, who becomes a Commander of the Legion of Honour, Sir George Beaton and Dr. Alexander Granville, the British Red Cross Commissioner at Alexandria, who have been made Officers, and Dr. Septimus Sunderland, who has been made a Chevalier of the same Order. The last honour is also conferred upon Miss Edith Pye, the directress of the Friends' Lying-in Hospital at Chiltons. Dr. Alexander Granville has also had conferred upon him the Order of the Crown of Italy. The King of Greece and the President of the Chinese Republic have conferred upon Sir William Robert Smith, late Sheriff of the City of London, a Commandership of the Order of George I. and a Second Class with Grand Order of the Order of the Excellent Cross respectively.

Medical men will very well recognise the appropriateness also of the following distinctions:

HONOUR TO GENERAL GORGAS.—In the course of a visit to the Queen Alexandra Hospital at Millbank on June 8th His Majesty the King bestowed the K.C.M.G. on Surgeon-General W. C. Gorgas, of the American Medical Service.

Mr. Wemyss Grant Wilson, director of the Borstal Association and of the Central Association for the Aid of Discharged Convicts, has received the honour of knighthood. Mr. C. M. Hutchinson, the Imperial Agricultural Bacteriologist, and Mr. R. S. Pearson, Forest Economist at the Research Institute of Dehra Dun, have received the C.I.E.

THE STANDARDISATION OF TREATMENT BY RADIUM.

To form an accurate conception of the value of radium in the treatment of malignant disease it is necessary to have some standards by which ideas can be fixed and comparisons made. In the course of the discussion at the Section of Obstetrics and Gynæcology of the Royal Society of Medicine, reported on p. 1270 of our present issue, various speakers gave hopeful or guarded opinions as the result of their experiences, but it was difficult to extract much helpful information owing to the lack of precision in the methods used and the lack of uniformity in the methods used and the methods. Thus, some used one tube of radium only and some many tubes. Quantities varied between 25 and 250 mg. of radium. The applications were given daily by some, weekly by others, and at periods of six weeks by a third set of investigators. The duration of exposure varied from 20 minutes to two days. Metals of known and unknown nature and thickness were employed as screens, and in some cases results investigated only a few days after the treatment, the question of a radium reaction being left out of consideration. While some buried tubes in the growth, others were content to place them against its surface. If progress is to be made along this hopeful line of treatment the operator must form a clear conception of what he is doing, and why he is doing it; of the changes likely to occur and the approximate time of their development. For purposes of collective investigation some standardisation of methods is essential. This does not imply absolute fixity or any unreasonable attempt to limit such variations as seem desirable; but it does imply persistence in a defined method over at least one series of cases, with subsequent alteration only for scientific reasons or as a result of definite observations deduced from that series. A clear statement of the exact technique used in treatment would enable one worker in radium to obtain valuable help from others. In England a helpful step in this direction would be the adoption of the practice of describing all quantities of radium used in terms of radium element or metal. It is the element itself, with its decomposition products, that is the source of the radiations, and physicists are strongly of opinion that radium element is the proper scientific standard. The use of radium bromide ($\text{RaBr}_2 \cdot 2\text{H}_2\text{O}$) as a standard is merely a survival of the older commercial methods of selling radium salts, and leads to endless confusion at meetings and in medical literature. There is no reason why its use should not die out, as did the older method of describing the strength of radium plates by their activity in relationship to uranium. The change would be very easy, as the quantities of salt to metal used are approximately as 2 to 1. Another point is that the unit of radium emanation is the "Curie"—that is to say, a Curie is the quantity of emanation in equilibrium with a gramme of radium element. Thus, so far as

medicine is concerned, to talk of a millicurie of emanation is equivalent to talking of a milligramme of radium element. The bromide standard obviously introduces an unnecessary complication, and, moreover, the exclusive use of the radium element unit would bring us into conformity with the big American radium centres.

ANÆSTHETISTS IN AMERICA.

THE American Association of Anæsthetists at a recent convention passed some resolutions which are very interesting to all concerned with anæsthetics. It will be remembered that not long ago we printed several letters from correspondents who discussed the advisability of encouraging the administration of anæsthetics by nurses. This practice, which necessity compelled during the war, and which as an emergency measure fulfilled its purpose admirably in most instances, has no wide measure of support in this country. In America it is more common, and the Association of Anæsthetists points out its disadvantages and those that accrue still more forcibly if administration is entrusted to unqualified persons even less instructed than the nurse. The Association expresses itself as "unalterably opposed to the employment of lay anæsthetists, nurse anæsthetists, and all other types of anæsthetists who shall not have graduated from recognised medical or dental colleges and have been licensed to practise medicine or dentistry." We are in cordial agreement, as we fancy will be our readers, with the opinions of the American Association of Anæsthetists, and hope to see its opinion supported by legal enactment in the chief States.

STRICTURE OF THE ŒSOPHAGUS.

CICATRICAL stricture of the œsophagus, resulting from the swallowing of caustic fluids, is fortunately not very common, for, when the stricture is multiple or extreme, treatment is by no means easy. Gradual dilatation by the passage of increasingly large bougies is a difficult and tedious business, and very trying to a nervous patient. Moreover, it is not possible to control the movements of any but the finest bougie by means of the thoracic route. Surgical intervention by the thoracic route has been essayed, but gives a high rate of mortality. Dr. Charles Goris has recently published a series of nine cases treated by surgical intervention through the stomach. The operation is carried out in two stages. In the first a gastro-fixation is performed, a large area of the cardiac end of the stomach being exposed. For the second stage of gastrotomy no anæsthesia is required, except in the case of children and nervous adults, the incision of the stomach wall being quite painless. The usual local anæsthesia is, of course, necessary for the contemporary passage of the œsophagoscope. A fine bougie is then passed into the stomach and a cotton thread attached and drawn through the stricture—cotton being preferred to silk since it is more resistant to digestion by the gastric secretion. An endless thread is thus established to which "olives" of increasing size may be fastened and an easy method of dilatation established. Once started, the patient soon learns to pass bougies for himself, and cure is comparatively rapid. Eight of Dr. Goris's cases were completely successful. In the ninth case it was found

¹ Sur nouveaux Interventions chirurgicales pour Strictures cicatricielles de l'Œsophage, Le Scalpel, April 17th, 1929.

"GRADE 'A' CERTIFIED MILK."

THE LANCET.]

impossible to pass a bougie without internal œsophagotomy. A temporary recovery was made and olives passed, but the patient was unable to continue to swallow on account of the pain caused. It was shown by radiography that a false passage had been made by the œsophagotomy.

"GRADE 'A' CERTIFIED MILK."

Milk bearing this description is now being retailed in Manchester, put up in sealed one-pint bottles at a cost of 7d. per pint—that is, 3d. a pint dearer than the milk usually supplied for domestic purposes. The milk comes from the farms direct in the natural raw condition, accompanied by a Government guarantee of purity, and is neither pasteurised nor sterilised. The cattle must have passed the tuberculin test, and the buildings and utensils have to be certified by the Ministry of Food as conforming to their required exacting standards of cleanliness. To safeguard the public against the substitution of old milk the date on which the milk was bottled and sealed at the farm is stamped on the outer label. The milk appears to be bought chiefly by those who have charge of young children, and it would be an interesting experiment, in view of the approaching hot weather, to subsidise some of the poorer families attending to welfare centres to enable them to use this milk, in the attempt to estimate the extent to which clean milk would prevent summer diarrhoea in infants.

NORMAL HORSE SERUM IN SEPSIS.

In the *Journal of the Royal Army Medical Corps* for April Dr. E. Emrys-Roberts gives an account of the use of normal horse serum inoculation in the treatment of sepsis in war wounds. Two classes of case are recorded by Dr. Emrys-Roberts: one a group of three cases of acutely spreading gas gangrene at a casualty clearing station, the other a group of 14 cases of serious wounds, with swinging temperatures, undergoing treatment at the Queen Mary's Military Hospital, Whalley, Lancashire. Neither septicæmia nor secondary hæmorrhage was held to be a contra-indication, but cases with "pocketing" or sequestrum formation were excluded as far as possible. In all the cases recorded encouraging results were obtained, with reduction of temperature, disappearance of slough from wounds, and ultimate recovery. Normal horse serum has, of course, been used in the treatment of various acute and chronic infective diseases for a number of years. It has also been used for hæmoptysis, hæmophilia and secondary hæmorrhage. In most cases the doses employed have been small—e.g., 5-10 c.cm. Dr. Emrys-Roberts, however, used massive doses, beginning with 50 c.cm. and increasing up to 150 c.cm. The question of dosage, therefore, may be a matter of importance, and may partially explain why Dr. Emrys-Roberts's cases did so much better than cases previously reported in civilian practice. We are inclined to think, also, that some allowance must be made for the character of the cases—the young healthy adult in excellent physical condition is probably a better subject from the point of view of resistance to sepsis than the weakly town-dwelling civilian of ordinary hospital practice. But in any case the results are so exceptionally good that we hope extended trial of the method will be made; and that, furthermore, care will be taken in the choice of suitable cases. New methods

of treatment are often unjustifiably condemned because they will not cure everything from migraine to carcinoma. With regard to the interpretation of the good results which he obtained, Dr. Emrys-Roberts is inclined to seek an explanation in the complement-content of the normal horse serum. Possibly this question might be cleared up by the use of decomplemented serum. If increased complement-content is in some way at the bottom of this treatment, then, as Dr. Emrys-Roberts points out, questions of leucocytic activity, cellular reaction, and antibody formation will have to be explored to this end. It is interesting to note that inoculations of peptone, bacterial protein (i.e., vaccines), and numerous other non-specific protein substances, appear to possess the power of reducing pyrexia in certain cases of chronic infective diseases, such as tuberculosis and chronic sepsis. Here is a difficult though fascinating field of research. Numerous cogent questions in serological and bacterial therapeutics seem to suggest that we are possibly on the verge of interesting new light on the old question of the relation of metabolism to temperature and antibody production.

THE SPAS OF SPAIN.

We have received from a correspondent some notes about the spas of Spain, which are regrettably little known in the British Isles. The mineral waters of Spain are of great number and variety, rich in medicinal properties, and are much favoured by Spaniards themselves. Some of the more accessible of these health resorts are likely in the near future to be visited by those tourists who used to frequent German and Austrian spas.

To many accustomed to the extraneous luxuries and amusements of spa life in other countries, Spanish health resorts may appear somewhat dull. The hotels often supply but little beyond the essential services of board and lodging. A band is by no means a matter of course, even in a fairly large establishment. The spas are private properties, licensed by the State only after a thorough investigation and analysis of the medicinal properties of the water in the springs. Many of them are run by a limited liability company and are advertised extensively; some spas appear to be on the side of moderation; some "indications" given for "cure-alls," no organ of the body or vague symptom of the disease is left out. There are no municipal spas. Unlike the watering-places in other countries, no one can take the waters without consulting the official doctor of the establishment, who is a member of the Association of Mineral Water Doctors and holds his appointment as a specialist.

There are over 200 spas in Spain, scattered broadcast throughout the peninsula. Some of these resorts are of the most primitive character. In general, however, the arrangements are sufficiently convenient for the ordinary people who desire to take their cure seriously and are content to lead a simple life and enjoy a delightful climate among a friendly and polite people. The difficulties for travellers in Spain are mainly those of the railways, but in certain parts these have greatly improved in recent times. In Spain "a cure" is a very popular holiday. A few weeks at an inland watering-place compares with an Englishman's trip to the sea. Some of the best known resorts are situated amid beautiful surroundings, and as a rule the season of easy reach of the beginning or middle of June to the end of September. For convenient travelling it would be necessary to confine the list of places to those within easy range of San Sebastian and Santander, and a useful variety of waters can be obtained in these districts. The following are among the best known,

and in general the arrangements are on more or less up-to-date lines.

Alzola.—Saline and gaseous, with an appreciable amount of lithia; suitable in dyspepsia, gout, and rheumatism, situated in beautiful surroundings. Several hotels beside the establishment with 80 bedrooms. In the Balneario every kind of apparatus for hydropathic treatment.

Caldas de Besaya.—Thermal saline, not far from Santander. Approached from San Sebastian. Useful in rheumatism.

Cestona.—Thermal saline, sulphated alkaline with a trace of lithia, used in diseases of liver and digestion, in gout and rheumatism. Fine bath installation.

Arrona on San Sebastian-Bilbao line.

Fuencaliente.—Mild ferruginous alkaline waters, useful in debility. On San Sebastian-Madrid line, near Miranda.

Lierganes.—"Gypsum waters" in chronic catarrh and skin diseases. Near Santander from San Sebastian.

Molinar de Carranzas.—Saline and gaseous, radio-active, indicated in rheumatic affections. Not far from Bilbao, on the line to Santander.

Ontaneda.—Thermal sulphur waters, similar to those of Harrogate; near Santander, on Bilbao-Santander line.

Sobron y Sorportilla.—Alkaline waters, indicated in rheumatism and dyspeptic troubles. Situated on the Ebro, near Miranda.

Solares.—Alkaline water, situated in beautiful scenery and within easy distance of interesting places. Near Santander.

Zaldiva.—Strong sulphur waters. A quiet little spa, situated in a small park near Bilbao. Good bath installation; on San Sebastian-Bilbao line.

The above resorts are all easily approached from San Sebastian and form samples of Spanish spas; pamphlets, with fuller details of their attractions, can be had from their respective directors. It is to be hoped that continental travel will soon become less complicated by passport formalities, as the interchange of visits between the people of neighbouring countries is more likely to cement national friendship than formal visits by their rulers. The insular attitude of the British was passing peacefully away, under the influence of cheap tours abroad, when in 1914 the whole of continental society was turned upside down and inside out by the war. That attitude should not return, but it will remain alive until habitual continental travel can be re-established among the middle classes. The present generation will hardly care to fraternise with the German-speaking people, but Spain is such an old enemy as to have been for many years a valued friend.

TUBERCULOSIS IN A REMOTE COMMUNITY.

IN the current number of *Tubercle* Dr. E. Björn-Hansen records a series of observations on the incidence of tuberculosis in a Norwegian mountain village in which no death from tubercle has been known. There is no road to the village, and the mother-parish is 14 miles distant. The folk are farmers, and number 53; the children go to the village school and are thus isolated from the outer world till they are prepared for confirmation in the mother-parish, apparently at the age of 15. It is thus not surprising to find that all the 17 children under that age were tubercle-free, as indicated by a negative von Pirquet reaction. Among persons from 16 to 25, 40 per cent. showed a positive reaction and, as might be expected, advancing ages revealed an increasing percentage of positive results, but there is again a fall at ages above 45, doubtless due to the fact that even in the mother-parish there was hardly a case of tuberculosis before the late "seventies" and that the whole district was then still more isolated than now. Of actual clinical tuberculosis 3 cases are noted. First, a consumptive labourer lived on one of the farms 18 or 20 years ago for 3 years, and in this and a neighbouring farm which he frequently visited

all the adults, but none of the children, gave positive reactions. The second case is that of a young man who suffers from benign tubercle of the lungs contracted while at work elsewhere and only recently returned, while the third case is one of non-suppurating disease of the glands. Dr. Björn-Hansen considers that all cases giving a positive reaction are derived from contact with the first of these three cases, or are newcomers, or are those who work much elsewhere, and he attributes the fact that tuberculosis has not been more virulent in this virgin soil to "the small quantity of infectious matter, the rare opportunity of re-infection, or the healthy life on these mountain farms." It should be added that the veterinary surgeon knows of no tuberculosis among the cattle, but no tuberculin tests have been applied.

THE SYSTEMATIC CONSERVATION OF MUTILATED FINGERS.

IN the *Gazette des Hôpitaux* of April 27th M. Paul Bonnet has called attention to the importance of systematic conservation of mutilated fingers the function of which is definitely lost, with a view to their use in plastic operations. During the war the premature or unexpected explosion of hand grenades rendered us familiar with such lesions. The treatment found necessary for conserving as much function as possible furnishes details of technique which may be useful in industrial accidents. M. Bonnet insists on the need of being as parsimonious as possible with regard to removal of skin and of delaying amputations which may appear necessary at first because the use of fingers seems to be irremediably lost. The skin of fingers which it is decided to sacrifice may afterwards prove useful in plastic operations necessary for loss of substance of the palm. M. Bonnet reports the following example.

A shoemaker, aged 43 years, was wounded by fragments of a grenade on August 27th, 1916, and brought to a field hospital four hours later. In addition to other wounds, there was a large irregular wound of the left palm extending slightly on the dorsum of the hand. The superficial palmar vessels were torn, and the tendons of the middle and ring fingers were divided. The ring finger was torn off from the middle of the first phalanx. The third phalanx of the middle finger with its integument was blown away, and the base of the finger was involved in the palmar wound. The first phalanx was fractured, and the flexor tendons were divided, but the finger was still attached to the hand by the skin of its dorsum. The superficial palmar arch and two collateral vessels were wounded and were ligatured. Dead tissue was removed from the margins of the wound. The function of the middle finger was irretrievably lost because the first phalanx was the seat of comminuted fracture and the flexor tendons were divided, but sufficient integument remained for the nutrition of the finger. The wound was cleansed with Dakin's fluid, and then carbolic solution was applied and a dressing impregnated with iodised alcohol. On Sept. 14th the aspect of the wound seemed to be favourable for a plastic operation. The wound was painted with tincture of iodine and freshened over its whole surface by curetting exuberant granulations. The margins, which showed a few points of sloughing, were freshened with a bistoury and in places undermined so as to allow the skin to be drawn over the wound, which was too large to be covered by the digital flap alone. The middle finger was divided longitudinally on its palmar surface, and then bared and freed from its tendons, the skin only being preserved. This constituted a large flap, connected to the dorsum of the hand by a pedicle 3 cm. broad. It was decided to reserve the stumps of the first phalanges of the middle

and ring fingers in the hope that they might help in prehension. The bone was freshened by division with forceps, and a stump 1 cm. long thus preserved. The flap derived from the middle finger had then to cover the stumps of the first phalanges of the middle and ring fingers, over which it was reflected, an extensive surface of the palm, and a small surface of the dorsum of the hand. It could not do this completely; there remained at the upper part of the palmar wound a small quadrilateral surface uncovered. Healing took place in a short time, but the patient was not able to resume his occupation of shoemaker, and the finger-stumps did not appear to assist in prehension. The results of the autoplasty, however, were excellent. This method of cheiroplasty by "boning a finger" was practised before the war, and described at the Société de Médecine de Nancy in 1911 by Gross.

DIABETES AND INFLUENZA.

ACCORDING to Dr. Ketil Motzfeldt,¹ of Christiania, though numerous cases of diabetes were published in connexion with the influenza epidemic of 1890, only a few instances of this association have been recorded during the last epidemic. He reports four cases in which the first symptoms of diabetes set in during an ordinary attack of influenza or shortly afterwards. In spite of the youth of the patients, who were aged 14, 15, 20, and 35 years respectively, the diabetes was of a very mild character, and in three cases the tolerance for carbohydrates increased considerably during the treatment. The first case was of special interest, inasmuch as the possibility of a pancreatic infection was suggested. The patient, a man aged 35, began to suffer from a peculiar deep-seated pain in the epigastrium during the first few days of his influenzal attack, and after the temperature had been normal for a week he developed thirst and polyuria. On admission to hospital a month later the urine gave a positive ferric chloride reaction; the sugar disappeared after five days' treatment. The tolerance was tested 18 months later, when 500 g. of bread could be taken without glycosuria. After 50 g. of glucose glycosuria appeared and lasted for three hours.

LIGHT FILTERS FOR MICROSCOPIC WORK.

WHILE for the ordinary purposes of laboratory technique the limits of microscopic vision have probably been reached with modern instruments, the results obtainable may be improved in many respects by a more careful manipulation of the means at our disposal. Kodak, Limited, have placed on the market a set of light filters for use with the microscope which should be of considerable value. These filters, known as the Wratten Visual "M" Filters, are distinct from the standard square sets used for photomicrography, being circular in shape with a diameter of 35 mm., and designed to fit the ring usually supplied with the ordinary substage microscopic fittings. They are sold in sets of nine and include a variety of tints, dark blue when the highest resolving power is required, green for contrast with pink- and red-stained specimens, red for contrast with blue- or green-stained specimens, and so forth. Two of the most useful of them are the neutral tint filter for modulating the intensity of illumination, and the "Tungsten to daylight" filter, which converts the light from an artificial illuminant to equivalent

daylight. The latter should be particularly called for where daylight is not available, or where a constant form of illumination is required.

THE IMPERIAL WAR MUSEUM.

It is doubtful whether a collection of exhibits like those now on view in the Imperial War Museum, opened by H.M. the King at the Crystal Palace on Wednesday, has ever deserved such absorbing attention. The war trophies from sea, land, and air are one and all of a most interesting description, and they are there in profusion. Apart from projectiles, weapons, guns, and other war materials, there are two sections of particular appeal to the medical profession—the naval and army medical exhibits. These sections not only illustrate the splendid service rendered by our great medical administrations, but are instructive also in regard to the methods of the enemy in this direction, and the ultimate straits to which Germany was reduced as the end approached. Lace curtains, for example, were used for bandaging, and spring wire cloth was made to replace rubber, and so forth. Again, examples are presented of all the appliances employed against poison gas attacks, and in the steps taken to supply the men with oxygen and various medicaments in the submarine. Much of the medical history of the war is here in graphic form, and the pictures are a very striking and attractive feature of the exhibition. We understand that the War Museum is to be a permanent one, so that the opportunity of studying the models and exhibits is to be open for all time. But we recommend an early visit, while the memory of events is fresh.

SARCOMA OF THE BLADDER.

At a recent meeting of the Chicago Urological Society Dr. Charles Morgan McKenna² reported a case of sarcoma of the bladder in an unmarried woman, age 42, who had suffered from periodical hæmaturia from 4½ to 6 months. On cystoscopic examination a papillomatous growth was seen which involved the orifice of the left ureter. Fulguration was performed five times at intervals of five days, and subsequently a suprapubic operation was carried out and the tumour removed. The ureter was divided about 1½ in. above its orifice and a transplantation made. Six months after the operation, when the case was reported, no recurrence had taken place. Histological examination of the tumour, which was about the size of a walnut and of very hard consistence, showed that it was a large spindle-celled sarcoma. According to Leguen sarcoma of the bladder is a very rare occurrence, only 55 cases having been recorded. It is more frequent in women than in men, and occurs mostly in early childhood and middle age. The tumour grows in the mucous membrane, is sessile, and rarely becomes pedunculated. It is usually situated at the base of the bladder in the neighbourhood of the ureter. Metastases are found in the bones, prostate, and iliac vessels, and secondary nuclei occur in the lungs, liver, and spleen. In the subsequent discussion Dr. Louis E. Schmidt, who reported three cases in patients aged from 19 to 25, confirmed the rarity of sarcoma and pointed out that the prognosis was much better than that of carcinoma of the bladder.

¹ Norsk Magazin for Lægevidenskab, April, 1920.

² The Urologic and Cutaneous Review, May, 1920.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

The Case of Pandit Devi Dayal Sasun.

At a meeting held on Wednesday, June 2nd, the Council proceeded to the consideration of this case. The charge was as follows:—

That being a registered medical practitioner you were, at the General Session holden at the Central Criminal Court on April 13th, 1920, convicted of the following felony—namely, of unlawfully killing Elsie Maud Wright—and sentenced to ten years' penal servitude.

Sir ARCHIBALD BODKIN read the evidence of indictment, and Mr. HARPER, solicitor to the Council, detailed the facts, which showed that 116 documents were found from the same number of women on whom it had now been proved he had performed an illegal operation. There was no defence, and no questions were asked by members of the Council.

After deliberating *in camera* the PRESIDENT announced as follows: "Pandit Devi Dayal Sasun having been proved to have been convicted of the felony alleged against him in the notice of inquiry, the Registrar has been directed to erase his name from the Medical Register."

The Case of Alexander John Wood, M.B., C.M. Edin.

This practitioner had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner you abused your position by committing adultery and eloping with Emma Jane Harman, a married woman, you having been the medical attendant of the family, of which adultery you were found guilty by the decree of the Probate, Divorce, and Admiralty Division (Divorce) of the High Court of Justice, dated Oct. 18th, 1918, and made absolute on May 5th, 1919, in the case of Harman v. Harman and Wood, in which you were the co-respondent. And that, in relation thereto, you have been found guilty of infamous conduct in a professional respect.

Mr. HARPER stated that the accused practitioner, formerly in practice at Poole, Dorsetshire, was now residing in Saskatchewan; a communication from him, addressed from Moosejaw, stated that he had no defence to make to the charge, "as the decision of the Divorce Court left me none," at the same time asking that, should his name be erased from the Register, it would be done without unduly dragging his name in the dirt again. Mr. Harper detailed the facts in the case, which the judge described as a very bad one. The adultery took place in 1912, and the petitioner stated that he could not apply for the decree until 1918, as he could not save the necessary money before the latter date—facilities for obtaining divorce decrees by the poor were not operative until 1915. Harman's wages were 30s. a week. The acquaintance of the parties began after the birth of Mrs. Harman's child, at which event he was in attendance.

After considering the matter *in camera*, the PRESIDENT notified the Council's decision as follows: "I have to announce that the Council have adjudged Alexander John Wood to have been guilty of infamous conduct in a professional respect, and have directed the Registrar to erase from the Medical Register the name of Alexander John Wood."

The Case of Frederick Arthur Pring.

The summons in this case bore the following charge:—

That being a registered medical practitioner you abused your position by committing adultery with Dorothea Morris, a married woman, with whom you stood in professional relationship, of which adultery you were found guilty by the decree of the Probate, Divorce, and Admiralty Division (Divorce) of the High Court of Justice, dated Nov. 5th, 1919, and made absolute on May 17th, 1920, in the case of Morris v. Morris and Pring, in which you were the co-respondent. And that, in relation thereto, you have been guilty of infamous conduct in a professional respect.

Mr. HEMPSON (solicitor) appeared for the accused practitioner, who did not attend.

Mr. HARPER, in submitting the facts of the case, first alluded to the question of the relationship of the accused to the lady in the case, as Dr. Pring had alleged that he did not stand in a professional relationship with her. This point did not come before the Divorce Court, whose concern was as to the proof or otherwise of the alleged adultery, and it held the charge to have been proved. But with the General Medical Council the crucial point in such cases had always been as to whether the accused practitioner stood in the position of medical attendant to the lady or the members of her family. If this relationship were established here Dr. Pring must be held to be guilty of the charge of infamous

conduct. A judge had declared "every bedroom in the village is open to the doctor." Mr. Morris brought divorce proceedings against his wife, with Dr. Pring and another man as co-respondents. As the case against the other man was not tried it would be unfair to use his name in the case. The case against Dr. Pring was tried and was answered formally by Mrs. Morris and by Dr. Pring, both denying the charge; and Mrs. Morris countercharged Mr. Morris with committing an unnatural offence upon her, which, if proved, would have disentitled Mr. Morris to a decree. It was held that an unnatural offence was committed. The onus now lay upon the accused practitioner to support his statement that he was not acting as medical attendant to Mrs. Morris, but he was not present to do so. On receiving the notice from the Council the accused practitioner wrote that he did not commit adultery, despite the decree, and that he did not stand in a professional relationship with Mrs. Morris. Mr. Harper said the statement was amazing to him, as he did not think there could be a clearer case of professional relationship. He proceeded to read portions of the 400 pages of evidence given at the trial, and from documents, to support the following points. Dr. Pring was acquainted with Mrs. Morris before her marriage (as Miss Tate), and after her marriage he frequently lived at the same hotel as Mr. and Mrs. Morris, at different places, and during the husband's absences was a frequent visitor. She at this time never went out alone with her husband, but frequently did so with Dr. Pring; later she refused to allow her husband to share her room. Subsequently she removed to Dr. Pring's house, where he agreed to treat her, and forwarded reports to her husband. Mr. Harper read a number of accounts of charges for professional attendance.

At this stage Mr. HEMPSON said now the correspondence had been read he could not ask the Council to go into the question of professional relationship as if it were contested.

Mr. HARPER read the lady's confession of adultery with Dr. Pring, extending over a considerable period.

Mr. HEMPSON briefly addressed the Council in his client's behalf, in which he contended that the evidence of misconduct was purely inferential, although he fully agreed that affection between the two had been proved. Mere contiguity of rooms at a hotel proved nothing. He called a witness as to character, Dr. J. C. Bentley, who was second in command of the Reserve Battalion to which Dr. Pring was attached.

Dr. J. C. BENTLEY stated that Dr. Pring and he were very friendly, and he never saw any behaviour between Dr. Pring and Mrs. Morris (whom Dr. Pring constantly referred to as his ward) other than what was proper for such a relationship during his many visits; and certainly all the senior officers knew the lady was married.

The Council then deliberated on the case *in camera*, and when strangers had been readmitted the PRESIDENT said: "I have to announce that the Council have judged Frederick Arthur Pring to have been guilty of infamous conduct in a professional respect, and have directed the Medical Registrar to erase from the Register the name of Frederick Arthur Pring."

Reports of Committees: Professional Examinations.

Dr. NORMAN WALKER moved the adoption of this report, which was concerned with the inspection of the examinations of the Apothecaries' Hall, Dublin, in 1919, by Dr. Finny, who was deputed to the work by the Council. It was a favourable report, Dr. Finny expressing the view that, if persevered in, the high tone of the examiners would raise the examination to the level of that of the Royal Colleges. He objected, however, to the piecemeal methods by which some candidates qualified. The report was adopted.

Dr. WALKER then proposed that the further report of the Examination Committee be adopted. This dealt with the examination tables for 1919 and on instruction in ophthalmology. There was a tendency for the licensing bodies to give less information than formerly as to operative surgery, ophthalmology, and mental diseases. The Council agreed to the recommendation:—

"That the licensing bodies which have not hitherto supplied in the return information as to whether they do or do not examine in operative surgery, ophthalmology, and mental diseases be asked to do so in future."

Dr. WALKER said that reports were still lacking from some licensing bodies to show how far their regulations were in accordance with the recent recommendation of the Council concerning the teaching of ophthalmology. It was to the effect that every student should be required to attend a course of practical instruction in this subject of not less than ten weeks, and that no

student should be allowed to sit in the Final Examination unless he presented a certificate stating that he had regularly attended such a course and that his work in the course had reached a satisfactory standard. The Committee appended the replies on this subject which had been received from 18 licensing and teaching bodies.

The Council agreed to the usual recommendation that the Dublin Apothecaries' Hall be requested to furnish tables of exemptions from examinations, and the results of examinations as heretofore. The Report of the Examination Committee as a whole was then adopted.

Dr. WALKER further stated that reports on the inspection of final examinations had been received from inspectors in reference to the examinations of the Conjoint Board in England on medicine, surgery, and midwifery, and of the Apothecaries' Society of London on medicine and surgery. It was agreed, however, that it would be wise to defer detailed comment upon them until the receipt of reports from other bodies, thus enabling a review to be made of the whole of the examinations.

Following this the Council deliberated on a number of matters *in camera*, and, on resuming the public hearing, considered the report of the Education Committee in regard to the duties devolving upon practitioners in their relation to the State and medical ethics, of which Committee Dr. Mackay is chairman. Replies on the matter had been received from 26 licensing and teaching bodies, and the general effect of these the Committee considers to be that the Council's recommendations were being given effect to. Some of the bodies promised more attention to the subject in the future.

Report of Public Health Committee.

At a meeting held on Thursday, June 3rd, Sir JOHN MOORE, chairman of the Committee, submitted this report. He pointed out that among all the medical authorities granting the D.P.H., exemptions were granted in only three. 136 candidates passed the first examination, and 49 were rejected; the final was passed by 146, and the rejections numbered 48. The figures showed an increasing recognition by the public services of this higher qualification, especially in regard to preventive medicine. He said the Committee had considered two further communications from the Director-General of the Medical Department of the Admiralty on the question of facilities for medical officers of the Navy. The first of these stated that the question of extended study-leave to medical officers in the Royal Navy who wished to take the D.P.H. was under consideration; and the second accompanied a copy of the syllabus for the two months' instruction at the Royal Naval Medical College, Greenwich.

The following recommendations at the end of the Committee's report were then discussed and eventually carried in due form, the PRESIDENT pointing out that there was no intention to cut down the total period of study in the least; it was merely putting the navy on the same footing as the army in this respect, and allowing the course to be taken in two parts at two places.

1. That the Council approve the instructions given to naval medical officers at the Royal Naval Medical School, Greenwich, before promotion, in the subjects of hygiene and bacteriology (systematic and practical laboratory courses) being accepted as equivalent to two months of the nine months curriculum required for the Diploma in Public Health.

2. That the course in hygiene at the Royal Medical School, Greenwich, required for promotion in the Royal Navy Medical Service, be considered equivalent to the instruction given by a teacher or teachers in the department of public health of a recognised medical school under Rule 3 (f), Note 1.

3. That the Council approve the proposal of the Committee to defer its detailed remarks upon the reports of the inspector in public health until the inspection has been completed, so that a general review of the examinations as a whole may be made.

Students' Registration Committee.

Sir NORMAN MOORE, the chairman of the Committee, submitted this report. It gives a list of applications for exceptional registration as students, or for the antedating of the commencement of professional study.

With the exception of the case of Mr. Wills, who applied to have the course of study which he took out at Meharry Medical College, Tennessee—for the M.D.—recognised, the report was approved. Meharry College was not thought to be of a sufficiently high standard. The Council's approval embraces the recognition of the following institutions: the Perse High School for Girls, Cambridge; Kingswood School, Bath; and Wellingborough School.

Report by Education Committee on Practical Midwifery.

Dr. MACKAY presented this report, and moved its reception.

Sir FRANCIS CHAMPNEYS, in seconding, passed the report under review, and added his views on the present-day position of the subject.

He thought it was being realised that midwifery was more directly associated with preventive medicine than with any other branch of medicine or surgery. It had been a long time getting into its due place—it was not there even yet. Medicine and surgery had always taken the lion's share in regard to beds and the amount of instruction insisted upon in order to qualify to practise. The modern development of midwifery had been largely along the lines of chemistry and bacteriology, especially in regard to the still obscure chapter concerning the toxæmia of pregnancy. The obstetrician stood at the gate of life, whereas medicine and surgery were concerned with combating deviations from the normal. The case of the pregnant woman was a matter of very great importance, especially in dealing with and preventing the effect of venereal disease; it could be combated before delivery. Gynecology could be regarded, in practice, as the clearing up of the debris of bad midwifery, and if midwifery were good much of the gynecology would be unnecessary.

Sir Francis Champneys then discussed the heads of the inquiry addressed to the recognised teaching institutions on the carrying out of the General Medical Council's recommendations. The requirements from candidates for a licence to practise were:

1. Every student before commencing the study of practical midwifery should have held the offices of clinical medical clerk and surgical dresser, and should have attended a course of lectures on surgery and midwifery.
2. Every student should be required to present a certificate bearing evidence that he has conducted 20 cases of labour under official medical supervision, subject to the following conditions: either (a) that he has previously given regular attendance for a period of three months upon the indoor practice of a lying-in hospital or the lying-in wards of a general hospital, and has received practical instruction therein; or (b) that he has previously given regular daily attendance for a period of one month upon the indoor practice of a lying-in hospital, or the lying-in wards of a general hospital or a poor-law infirmary having a resident medical officer, recognised by one of the licensing bodies, and that he has conducted cases of labour therein and has been certified by his instructor as competent to conduct outdoor cases under official medical supervision.
3. The certificate that the student has conducted the above-mentioned 20 cases of labour should be given by a member of the staff of a lying-in hospital, or the maternity charity of a general hospital recognised by one of the licensing bodies, or of a dispensary having an obstetric staff, or a poor-law infirmary having a resident medical officer similarly recognised.

He said the recommendations of the Council had been received with general goodwill. Several of the teaching bodies were unable to provide 20 cases for each student owing to insufficiency of material. The first necessity was a large increase in lying-in beds, without which adequate instruction at the bedside was impossible. A reduction in the number of required cases per student would lower the standard. A large number of the women trained for the examinations of the Central Midwives Board never intended to practise as midwives, hence the cases allotted to such women during their training were, in regard to the primary requirements of the State, wasted. In 12 years the cases of which this could be said numbered 356,420. The lying-in beds now available at the London medical schools would not suffice for the complete education of all their students. Meanwhile he emphasised the necessity of intensive culture with respect to cases in the out-door maternity departments; students should be diligently taught upon such cases. The passing of the Midwives Act, 1902, was followed by a marked drop in puerperal mortality, and it had never since risen to its former level. A certain number of students would receive in-patient training—to be followed by out-patient training—if a redistribution of beds were made in the general hospitals.

The Education Committee believed that the present difficulties might be greatly alleviated. First, in regard to the deficiency of lying-in beds, by the utilisation of beds in Poor-law institutions under skilled instruction; and

secondly, in reference to the deficiency of lying-in cases by the limitation of candidates for the certificates of the Central Midwives Board to pupils who have given undertakings to engage in practice as midwives for not less than three years after qualifying. Thirdly, the difficulty in regard to instruction could be largely met by the improvement in the quality of the teaching at the bedside in lying-in wards and in out-patient maternity departments. The Committee considers that the teaching of midwifery should be as thoroughly practical as that of surgery.

A general discussion on the subject ensued. Dr. DEAN (Manchester) assured the Council that the regulations were fully carried out at Manchester University. In fact, many students went there for this training because they could not get the accommodation and facilities in their own school.

Mr. G. TURNER thought this one of the most important matters which could come before the Council at the present time, because cases of labour among the industrial classes were more and more passing into the hands of the qualified midwife—a beneficial change from the old septic “handy woman”—with the result that the function of the practitioner was becoming more than ever that of consultant in the midwife's cases in which difficulties presented themselves. This the practitioner in many cases did not favour.

Sir GILBERT BARLING said he hoped they would not wait for the medical millennium before establishing the proper teaching of midwifery. The Poor-law authorities were anxious to promote what the Council desired. He hoped the teaching of midwifery would not be divorced from that on the subject of diseases of women. It was not desirable to train the medical student and the midwife in one institution; if any such attempt were made, one or the other would suffer injustice. Provision in this matter should be made at once, otherwise the large number of people now entering the profession could not have the necessary training.

Dr. MATTHEW HAY said medical men were not too ready to certify puerperal fever as a cause of death; but in Aberdeen for some years he had asked the registrar to inform him of the death of any woman occurring within four weeks of child-birth, whatever the cause was declared to be, and cases were not so have been due to puerperal fever which were not so certified. The Poor-law was about to die, and in Scotland women showed a strong disinclination to go to their institutions; they preferred to go to maternity work even to be able to choose for maternity work women who had had a previous hospital training.

Sir GEORGE NEWMAN agreed as to the need to take practical steps at once. Many proposals came before the Ministry of Health for the establishment of maternity homes, but the building of such institutions was likely to be postponed for some time to come because of the need of ordinary dwelling-houses. Half the general beds in this country were in the possession of the Poor-law authorities, about 90,000, and 30,000 of these might be available for hospital purposes. Amid great difference of opinion on nearly all subjects, everyone seemed to agree that there should be adequate provision for every child at the moment of birth. He did not hope for a proper utilisation of Poor-law accommodation until the supposed stigma attaching to the name had been conquered.

Sir JOHN MOORE said that in the Royal College of Physicians in Ireland this was a very burning question. He urged the discontinuance of the use of the term “Poor-law,” and asked that Ireland be excluded from the recommendation. This was conceded.

The PRESIDENT said that a change in this regard had come over the local authorities, for, in contrast to the condition years ago, the Local Government Board and the Ministry of Health were now anxious that the Poor-law and maternity institutions should be fully utilised for the purposes of clinical teaching.

The report and the following recommendations were agreed to:—
That a communication be addressed to the Ministry of Health and the Board of Health of Scotland begging that steps may be taken for the utilisation of existing Poor-law institutions for clinical instruction, and that such instruction shall be placed in the hands of experts; further, calling attention to the desirability of limiting the acceptance of candidates

for the C.M.B. certificates to those who give an undertaking to engage in the practice of midwifery for not less than three years after their qualification.

It also recommends that the attention of recognised teaching institutions be again called to the recommendation of the Council issued to them in 1905, in the hope that when the present difficulties in training are alleviated, they may be able to carry out these recommendations in their entirety, and that the present conditions of training, which in many cases cannot be approved, may be rendered sufficient and such as the Council will be able to regard as satisfactory.

The Dental Education and Examination Committee.

The discussion of these reports occupied the rest of the day's sitting, and a report of the adjourned proceedings will follow next week.

THE ARMY MEDICAL SERVICE: A GREAT APPRECIATION.

A DINNER was given in appreciation of the services of the Royal Army Medical Department and the eminent civilians attached to it during the war on Tuesday last, at the Connaught Rooms, under the chairmanship of Lord MIDLETON. The hosts, many of whom it will be seen have held, or are holding, the highest positions at the War Office, were the following:—

Viscount Burnham, the Earl of Derby, the Earl of Donoughmore, Viscount St. Davids, Lord Desborough, Sir John Ellerman, Earl Fitzwilliam, Sir Alan Hutchings, Sir Heath Harrison, Bt., Mr. Vesey G. M. Holt, Lord Harris, Lord Inchcape, Viscount Knutsford, the Marquis of Lansdowne, Sir Walter Lawrence, Bt., Lord Lee of Fareham, the Earl of Middleton, Sir William B. Peat, Sir Ivor Phillips, Lord Queenborough, Sir Samuel Scott, Bt., the Marquis of Salisbury, Lord Somerleyton, the Right Hon. J. E. R. Seely, the Earl of Scarborough, the Hon. Sir Arthur Stanley, the Right Hon. H. J. Tennant, Lord Edmund Talbot, Sir Edward Ward, Bt., and Lord Waverley.

Those with an asterisk formed the dinner committee. Sir Edward Ward took on the task of secretarysthip.

After the King's health had been drunk, Lord MIDLETON proposed the only toast of the evening—namely, “The Royal Army Medical Department and the Eminent Civilians Attached to it,” compiling the toast with the names of Lieutenant-General Sir Alfred Keogh, Director-General during the first four years of the war; Lieutenant-General Sir John Goodwin, his successor and the present Director-General; and Sir George Makins, President of the Royal College of Surgeons of England and late consulting surgeon to the armies in France.

Lord MIDLETON said that he believed this was the only case since the armistice that a particular branch of the army had been the object of a public ovation, and that it was remarkable when contrasted with the past attitude of the nation to all but the combatant branches of the medical service had been hurried into the field, although starved in numbers for peace service, insufficiently paid, without leisure or opportunity for scientific training, separated by a water-tight partition from the great civil profession which could be its only effective reserve, and confined to a medical curriculum the records of which were men in that room who could remember the days when in a large cantonment the only site assigned for a hospital, where capital operations were to be performed, was a vacant spot between a dust-heap and a slaughter-house. And when the senior medical officer intended move of the army was the necessity of the To a department were to be now held of the departments in if a review were to be now held of the departments in since 1900, he would make bold to say that the Commander-in-Chief in ordering the parade would not be unlikely to place the Army Medical Department on the right of the line. Nowadays the men who held commands in war, the equipment chosen as to hold the same as the equipment for moment designed for peace was the same as the equipment for war, the gap between civilian and professional service was so bridged over that the professional service were applied by the Army Medical Department in the years before the war that it conciliated to itself the entire support of the great civilian profession, the most eminent members of which were there that night. The equipment was so overhauled that no change was necessary in it.

any of the campaigns since 1914. A sanitary branch was organised in 1903, and while typhus was kept wholly at bay, malarial fever received a knock-down blow, as the figures for the South African War showed, compared with British figures for the recent war. Inoculation had won as many battles for us as any one of the distinguished commanders present that night, while the man who discovered the "Leishman bacillus" deserved as much of his country as the man who invented the Lewis gun. The Royal Army Medical Corps, which consisted of 800 officers and 9000 other ranks in July, 1914, was developed to 16,000 officers and 132,000 other ranks in 1919, and exceeded in numbers the original Expeditionary Force. Beyond these thousands of busy practitioners attended hospitals for hours daily, refusing all remuneration; 18,000 V.A.D.s gave their services in these hospitals for years together; and 2000 masseuses, provided by the public spirit of Lord Queenborough, served under the direction of Miss French. Can you, asked Lord Middleton, have a higher tribute to any corps than that the nation thus mobilised itself in its support? With these reinforcements the Army Medical Corps, who having 2000 patients in hospital in 1914 attended 577,000 in 1919, and as early as July, 1916, received 48,000 patients in hospital in a single week. We owe it to the successive heads of the Army Medical Department at home and abroad that these gigantic developments did not lead to hopeless confusion. Our army was the only one of all the combatants which had to conduct six different expeditions at the same time. It would be strange if with the desperate struggle in the Ardennes, the sudden stroke in Salonika, the mirage of Mesopotamia, all coincident with overwhelming claims in France, we had not entirely avoided military miscalculations and consequent medical perplexities. But through these difficulties the Army Medical Department, with its immense civilian retinue, marched busily high to ultimate success. Lord Middleton concluded his speech as follows: "There sits upon my right to-night as our chief guest the man who typifies the administrative genius, the executive efficiency and the scientific skill which enables us to thank our guests not merely for great service to the Empire, but for the position which they have won for Great Britain in the scientific world. It is due to him, to his able successor Sir John Goodwin, and to the magnificent civilian assistance, typified by Sir George Makins, that the magnificent tribute can be paid to the Army Medical Department that 'the Department stands well with the army.'"

Mr. WINSTON CHURCHILL asked whether any form of national effort producing the devices of destruction had received its tribute of popular applause, why should those who in equal danger and in equal hardship had been saving life, not receive their meed? He pointed out that, when our island nation, with its Empire gathered about it, plunged into war, so vast an expansion of everything, offensive, defensive, and protective, had to follow, that those were found right in their forecasts who dared to think bigger than war could else. As a measure of the expansion in bulk of the work of the services, he said, when the war began there were 7000 beds available, and when it ended there were 700,000 beds occupied. As a measure of the range of great eloquence he urged his audience to imagine what must have meant to thousands of homes and hundreds of thousands of men, in periods of the greatest human weakness and misfortune, to know that the great mass of suffering, misery, and shattered figures, which represented war, could cast itself upon the mercy of the Royal Army Medical Corps, never to find that mercy lacking; and he illustrated his meaning with a remarkable and personal picture of a large hospital station a few hours after a battle has begun. Mr. Churchill's services were highly commended by eminent civilians, and gracefully confessed himself to have been in former days Lord Middleton's critic, "youthful, ignorant, and hard," so that he rejoiced in the opportunity of supporting the toast gave him, of saying that Lord Middleton's work in the organisation of the army, following the Boer war, had been in its most important respects signally vindicated.

Field-Marshal Earl Haig described the work of the medical units attached to his own command during the fighting on the Aisne, and dwelt on the extraordinary difficulty of the circumstances in which that work was carried on. He went on to say that the Royal Army Medical Corps throughout the war had been absolutely splendid, unselfish, and devoted, while as the army grew the medical service had grown in efficiency as well as size. He testified to the happy relations which existed between the Regular R.A.M.C. and the temporary, and the Territorial officers, and the rest of the army. In conclusion, his personal and lasting debt, as Commander-in-Chief, to those in authority over the Army Medical Department during the war, making special allusion to Sir Arthur Sloggett, Director-General in France from 1914 to 1918.

3. Sir ALFRED KEOGH said that on such an occasion it was completely impossible for him, either in the time at his disposal or in any unlimited time, to express all that should

be said. That night gave the Army Medical Department a triumph after more than 60 years of endeavour on their part to become efficient. The beginning of that endeavour be traced to the influence of the great Sidney Herbert, who after the Crimean War took the lead in the movement for army medical reform, and was the mainspring of the first Royal Commission on the Sanitary Condition of the Army. The movement thus started, said Sir Alfred Keogh, did not progress with any strength, and nothing much was done that was practical until God sent the cause of medical reform two men—Milderton and Haldane. Lord Milderton gave the officers of the Royal Army Medical Corps the opportunity for post-graduate study, which made their scientific position secure and founded the schools in London. Lord Haldane brought the Regular medical officer of the army into close touch with the civilian branch of his profession, a thing which the R.A.M.C. had always craved for. Alluding to the conduct of the R.A.M.C. in the war, now receiving a testimony which words failed him to describe, Sir Alfred Keogh pointed out that none of their improvements in sanitary science or education would have been of the least use had it not been for the intelligent sympathy of commanders in the field, commanders in the air, and battalion and company commanders, who cared for the health of their men. He pointed out that in the Mediterranean area, Field-Marshal Sir Henry Methuen, Governor of Malta, had filled the position of a great coordinator of all medical effort.

The toast was replied to also by Sir JOHN GODWIN and Sir GEORGE MAKINS. The Director-General declared that the work of his department could not have been carried on with any success had it not been for the hearty coöperation of the War Office and the devoted industry of his staff, while he took the opportunity of reminding the audience how much our medical services at the beginning of the struggle owed to the voluntary aid of American surgeons. Sir George Makins, replying for the civilians attached to the corps, briefly but sincerely acknowledged the unique compliment paid to medicine on the occasion, and alluded to the advantages which had accrued to medicine through the wide interchange of knowledge in unparalleled conditions.

The company at dinner included—

Field-Marshal: Earl Haig and Lord Methuen.

Generals: Sir Ian Hamilton, Lord Horne, Sir Archibald Murray,
Lord Bawlinson

Lord Rawlinson.
Lieutenant-Generals: Sir William Babbie, V.C., Sir T. E. Clarke,
Sir John Goodwin, Sir L. Gubbins, Sir Alfred Keogh, Sir G. M.
Macdonough, Sir Arthur Sloggett.

Major-Generals: Sir W. G. Bedford, A. P. Blenkinson, Sir Anthony Bowley, Sir David Bruce, G. Cree, Lord Dawson of Penn, Sir W. Donovan, Sir G. Evatt, Sir T. Gallwey, Sir R. S. F. Henderson, Sir J. M. Irwin, Sir R. Jones, Sir W. V. Kennar, S. MacDonald, Sir W. Macpherson, Sir George Makins, B. Guise Moore, Sir W. Beckett, Sir J. D. O'Connell, Sir J. O'Keefe, Sir W. W. Pike, Sir M. Russell, Sir Hon. J. St. John, Sir G. Street, A. A. Sutton, Sir C. Wallace, Sir H. R. Whitehead, Sir T. Yarr.

Brigadier-Generals: W. W. O. Beveridge and M. H. G. Fell.

Colonels: Sir F. G. Darling, Sir H. E. D. Bruce-Porter, F. F. Burghard, E. P. Buzzard, A. Carless, W. Coates, J. M. Cowan, Maurice Craig, S. L. Cummins, Sir H. Davy, R. Davies-Collier, L. S. Deane, C. de la Motte, Sir J. de la Moynes, T. B. Eccles, Sir R. Elliott, Sir T. Crisp English, S. Flemming, Sir J. French, Sir J. Galloway, G. E. Gask, Sir R. Gray, H. A. Hinge, W. E. Hume, W. Hunter, H. E. R. James, Sir W. Arbuthnot Lane, Sir W. T. Lister, J. R. McMillan, Sir J. Magill, G. A. Moore, Sir R. Morcan, Sir J. Murray, Sir J. Mylres, J. A. Nixon, T. H. Ovenshine, H. Parsons, W. Pasteur, A. S. Peck, J. P. Pennington, C. E. Pollock, O. L. Robinson, Sir A. Mayo Robson, Sir R. Ross, A. D. Sharp, J. Sherratt, T. Sinclair, S. Maynard Smith, A. R. Sollau, Sir J. Purves Stewart, W. Taylor, G. St. C. Thoma, Sir W. Thorburn, Sir J. H. Tudhope, W. H. Tudhope, Sir J. Turner, C. R. Tyrrrell, Sir G. Gordon Watson, M. Wyndham, Sir B. Wheeler, Sir Adelaide White, W. H. Wilcox, Sir Lisle Webb, A. E. Webb Johnson, A. S. Woodward, Sir E. Worthington.

Brevet Lieutenant-Colonel W. C. Smales.
Lieutenant-Colonels: A. Bailfour, F. S. Breckton, G. S. Buchanan,
Sir J. R. A. Clark, F. E. Fremantle, M.P., H. French, Sir J.
Kingston Fowler, Wardrop Griffith, Sir A. Garrod, D. Harvey, F. R.
Hill, G. M. Holmes, P. S. Lelan, Sir I. Mott, Sir H. M. Rigby, P.
Sargeant, A. B. Smallman, E. C. M. Smith, T. E. Twiss, A. White-
Robertson.

Major: P. G. Easton, R. C. Elmslie, G. A. D. Harvey, A. D. Stirling.
Captain A. H. Wright.

Sir Charles Wallace, Dr. C. Hubert Bond, Sir Napier Burnett,
Sir George Buchanan, The Right Hon. Winston Churchill, M.
Sir Herbert Greedy, Sir F. Marriott Cooke, Lord Desborough,
The Earl of Donnington, The Earl Fitzwilliam, Sir W. Fletcher, Lord
Dunraven, Sir John Glynne, Sir J. Glynne, S. G. Horner, Sir
Alan Hutchings, Viscount Knutsford, Lord Loe,
Sir W. Lawrence, Dr. V. Warren Low, Sir Ivor Phillips, Sir
John Scott, Lord Somerleyton, Dr. R. Sarsfield,
Lord Edmund Talbot, Lt. Hon. B. J. Tennant, Sir J. Lynn Thomas,
Walter Lloyd Jones, Sir Jenner Verrall, Dr. N. Walker, Sir Edward

The evening closed with cordial votes of thanks from the company to Lord Middleton, as chairman, and Sir Edward Ward, as secretary.

secondly, in reference to the deficiency of lying-in cases by the limitation of candidates for the certificates of the Central Midwives Board to pupils who have given undertakings to engage in practice as midwives for not less than three years after qualifying. Thirdly, the difficulty in regard to instruction could be largely met by the improvement in the quality of the teaching at the bedside in lying-in wards and in out-patient maternity departments. The Committee considers that the teaching of midwifery should be as thoroughly practical as that of surgery.

A general discussion on the subject ensued. Dr. DEAN (Manchester) assured the Council that the regulations were fully carried out at Manchester University. In fact, many students went there for this training because they could not get the accommodation and facilities in their own school.

Mr. G. TURNER thought this one of the most important matters which could come before the Council at the present time, because cases of more passing into the industrial classes were more and more passing into the hands of the qualified midwife—a beneficial change from the old septic “handy woman”—with the result that the function of the practitioner was becoming more than ever that of consultant in the midwife's cases in which difficulties presented themselves. This the practitioner in many cases did not favour.

Sir GILBERT BARLING said he hoped they would not wait for the medical millennium before establishing the proper teaching of midwifery. The Poor-law authorities were anxious to promote what the Council desired. He hoped the teaching of diseases of women. It was from that on the subject of medical student and the not desirable to train the medical student and the midwife in one institution; if any such attempt were made, one or the other would suffer injustice. Provision in this matter should be made at once, otherwise the large number of people now entering the profession could not have the necessary training.

Dr. MATTHEW HAY said medical men were not too ready to certify puerperal fever as a cause of death; but in Aberdeen for some years he had asked the registrar to inform him of the death of any woman occurring within four weeks of child-birth, whatever the cause was declared to be, and cases were found to have been due to puerperal fever which were not so certified. The Poor-law was about to die, and in Scotland women showed a strong disinclination to go to their institutions; they preferred to go to other places, even to be confined in unsatisfactory lodgings. He would like to be able to choose for maternity work women who had had a previous hospital training.

Sir GEORGE NEWMAN agreed as to the need to take practical steps at once. Many proposals came before the Ministry of Health for the establishment of maternity homes, but the building of such institutions was likely to be postponed for some time to come because of the need of ordinary dwelling-houses. Half the general beds in this country were in the possession of the Poor-law authorities, about 90,000, and 30,000 of these might be available for hospital purposes. Amid great difference of opinion on nearly all subjects, everyone seemed to agree that there should be adequate provision for every child at the moment of birth. He did not hope for a proper utilisation of Poor-law accommodation until the supposed stigma attaching to the name had been conquered.

Sir JOHN MOORE said that in the Royal College of Physicians in Ireland this was a very burning question. He urged the discontinuance of the use of the term “Poor-law,” and asked that Ireland be excluded from the recommendation. This was conceded.

The PRESIDENT said that a change in this regard had come over the local authorities, for, in contrast to the condition years ago, the Local Government Board and the Ministry of Health were now anxious that the Poor-law and maternity institutions should be fully utilised for the purposes of clinical teaching.

The report and the following recommendations were agreed to:—
That a communication be addressed to the Ministry of Health and the Board of Health of Scotland begging that steps may be taken for the utilisation of existing Poor-law institutions for clinical instruction, and that such instruction shall be placed in the hands of experts; further, calling attention to the desirability of limiting the acceptance of candidates

for the C.M.B. certificates to those who give an undertaking to engage in the practice of midwifery for not less than three years after their qualification.

It also recommends that the attention of recognised teaching institutions be again called to the recommendations of the Council issued to them in 1905, in the hope that, when the present difficulties in training are alleviated, they may be able to carry out these recommendations in their entirety, and that the present conditions of training, which in many cases cannot be approved, may be rendered sufficient and such as the Council will be able to regard as satisfactory.

The Dental Education and Examination Committee.

The discussion of these reports occupied the rest of the day's sitting, and a report of the adjourned proceedings will follow next week.

THE ARMY MEDICAL SERVICE: A GREAT APPRECIATION.

A DINNER was given in appreciation of the services of the Royal Army Medical Department and the eminent civilians attached to it during the war on Tuesday last, at the Connaught Rooms, under the chairmanship of Lord MIDLETON. The hosts, many of whom it will be seen have held, or are holding, the highest positions at the War Office, were the following:—

Viscount Burnham, the “Earl of Derby,” the Earl of Donoughmore, Viscount St. Davids, Lord Desborough, Sir John Ellerman, Earl Fitzwilliam, Sir Alan Hutchings, Sir Heath Harrison, Mr. Mr. Vesey G. M. Holt, Lord Harris, Lord Inchcape, Viscount Knutsford, the Marquis of Lansdowne, Sir Walter Lawrence, Bt., Lord Lee of Fareham, the “Earl of Middleton,” Sir William B. Peat, Sir Ivor Philipps, Lord Queenborough, Sir Samuel Scott, Bt., the Marquis of Salisbury, Lord Somerleyton, the “Right Hon. J. E. B. Seely,” the “Right Hon. H. J. Tennant,” Lord Edmund Stanley, the “Right Hon. H. J. Tennant,” Lord Edmund Talbot, “Sir Edward Ward, Bt., and Lord Wavertree.

Those with an asterisk formed the dinner committee. Sir Edward Ward took on the task of secretarship. After the King's health had been drunk, Lord MIDLETON proposed the only toast of the evening—namely, “The Royal Army Medical Department and the Eminent Civilians Attached to it,” coupling the toast with the names of Lieutenant-General Sir Alfred Keogh, Director-General during the first four years of the war; Lieutenant-General Sir John Goodwin, his successor and the present Director-General; and Sir George Makins, President of the Royal College of Surgeons of England and late consulting surgeon to the armies in France.

Lord MIDLETON said that he believed this was the only case since the armistice that a particular branch of the army had been the object of a public ovation, and that it was remarkable when contrasted with the past attitude of the nation to all but the combatant branches of the medical service had been hurried into the field, although starved in other wars. In every war up to the present the medical numbers for peace service, insufficiently paid, without leisure or opportunity for scientific training, separated by a water-tight partition from the great civil profession which could be its only effective reserve, and confined to a medical curriculum the records of which were mainly a study in erotic literature. There were men in that room who could remember the days when in a large cantonment the only site assigned for a hospital, where capital operations were to be performed, was a vacant spot between a dust-heap and a slaughter-house, and when the last man to hear of any intended move of the army was the senior medical officer. To a department so restricted peace was a necessity. But if a review were to be now held of the departments of the army, and the award of excellence given solely for progress since 1900, he would make bold to say that the Commander-in-Chief in ordering the parade would not be unlikely to place the Army Medical Department on the right of the line. Nowadays the men who held commands in peace were so chosen as to hold the same commands in war, the equipment designed for peace was the same as the equipment for war, the gap between civilian and professional service could be so bridged over that the professional service could be developed into a national force. These principles were applied by the Army Medical Department in the years before the war that it conciliated to itself the entire support of the great civilian profession, the most eminent members of which were there that night. The equipment was so overhauled that no change was necessary in it in

[JUNE 12, 1920]

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THE NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.

THE fifth annual meeting of the National Council for Combating Venereal Diseases was held in the Barnes Hall of the Royal Society of Medicine on June 7th, when there was a very large attendance.

Lord SYDENHAM, who occupied the chair, said that owing to advancing years he was retiring from the Council as President, but expressed his deep interest in the movement, which had never been so vigorous or so progressive as at the present time. Beginning in London on a small scale, the organisation had now branches all over the country.

Few people realised, he said, the difficulties with which the Council had to deal, involving as they did both problems in physiology and psychology, as well as the situation of ignorance and prejudice. The work needed the cooperation of medical men and laymen and women, while the moral side required the aid and support of religious bodies, who, however, in many cases did not seem to realise the great danger to individuals and to the race which resulted from venereal diseases. If the teachings of the Council were universally adopted, much would be done to stamp the disease out of the country. Already a vast amount of propaganda work had been done, and probably two and a half million people had been reached. A large sum of money had been spent in clinics in towns, but the rural areas had not been reached, and here the help of the general practitioner was required. The results of clinics could not be considered altogether satisfactory, for of the 175,000 people who had been treated about half had left before treatment was completed. Means would have to be found sooner or later to prevent this waste of public money. All the Dominions had set up organisations affiliated with the National Council, and the Treasury had helped in sending two commissions to eastern and western groups of colonies, aid having also been received from the Colonial Office. The Empire was thus being subjected to a valuable spade work, and information was being exchanged with America. The setting up of a health section with a permanent bureau in connexion with the League of Nations would be good for society at large. Red Cross were instituting similar movements, and the cordial relations between the Ministry of Health and the Council were making progress in many directions. But continued and united efforts were necessary to free the country from a scourge which affected the whole life of the nation and menaced the race at a time when the most vigorous citizens in mind and body were needed.

Lord ASTOR said that the Ministry of Health recognised the work of the Council to be on sound lines. In attacking disease of all kinds voluntary effort could do much which a Government could not do, and it was of vital importance that the country should have a clean bill of health. Lord Astor continued:—

The war had left a legacy of venereal disease coupled with a reduction in the birth-rate. Statistics were not available, but the attendances at institutions for the treatment of venereal diseases had increased, and he was glad that the efforts of the Ministry of Health had encouraged people to come and be treated. Deaths from syphilis, general paralysis of the insane, and locomotor ataxy were not increasing. This, however, did not mean that the extent of venereal disease was not serious. Compulsory treatment was being advocated, but it was first necessary to provide enough facilities for diagnosis and treatment for those affected. Compulsion would inevitably lead to concealment and failure to apply for treatment. During the war venereal disease was reduced more by women police and drink control than by the 40D and 13a regulations. State interference and compulsion on the continent had not produced populations which were cleaner or healthier in mind and body than our people, while in this country the C.D. Acts had never been a success. In regard to "packets," their value had not been proved, and the risk to health and the welfare of the community would be serious. Their use in the army, where the men could be regularly examined, and where they could be punished or controlled, was a different matter. It was necessary to stimulate medical education and bring the general practitioner more into touch with modern medical science, and the Ministry of Health proposed to work through the medical schools and the V.D. clinics, of which there were now 172; but more and better ones were needed. Rural areas afforded special difficulties, for the same privacy could not be obtained as in town. Greater facilities were needed for diagnosis and treatment, with special reference to the needs of seamen and of pregnant women. The temptations of our seafaring population must be kept in mind. More hostels for girls were also wanted, and propaganda

must be increased both for adults and adolescents. Finally, he hoped that the League of Nations, through its health section, would help to solve the V.D. problems as well as many others.

Lord GORRELL, who succeeds Lord Sydenham as President of the National Council, proposed a vote of thanks to Lord Astor for his address and support, which was seconded by Sir MALCOLM MORRIS, who said that in rural communities the general clinic was needed, where all people could go for all diseases, when secrecy would be kept, therefore, with regard to venereal diseases.

The proceedings terminated with a vote of thanks to the chairman.

SOCIETY FOR THE PREVENTION OF VENEREAL DISEASE.

THE first annual meeting of this society was held on June 3rd in the Barnes Hall of the Royal Society of Medicine, Lord WILLOUGHBY DE BROKE presiding.

The CHAIRMAN after recalling the origin of the society, as due to the common-sense view that to avoid contagion contact must be avoided, pointed out to his audience that, inasmuch as a little knowledge, especially unscientific, unscientific knowledge, is dangerous in the highest degree, it was important that the truth should be made available for the public under the control and with the supervision of qualified medical authorities, such as the Ministry of Health, medical officers of health all over the country, or any other public body qualified to say what is and what is not a disinfection against venereal disease. It was for that policy that he invited the cordial cooperation of those present, and the following resolution was put to the meeting:—

That inasmuch as the Ministry of Health has failed, and public bodies, including the London County Council, have declined, to provide the means of delayed disinfection against venereal disease at abatement centres, this meeting calls upon the Ministry of Health and upon local authorities to instruct all qualified chemists to sell such means of immediate self-disinfection against venereal disease as may be approved from time to time by the Ministry of Health or medical officer of health.

Lord Willoughby de Broke repelled the accusation brought against the society that the establishment of disinfectant centres, with information how to use them, would be a deliberate invitation to promiscuous intercourse, and denied that members of the society could be accused either of incitement to immorality, or of default from the high moral aim of attempting the promotion of public health.

Dr. C. W. SALFEEBY, Sir JAMES CRICHTON-BROWNE, Sir FREDERICK MOTT, and Sir W. ARBUTHNOT LANE supported the resolution. Sir FREDERICK MOTT confirmed the two first speakers in their statements that the disabilities produced by syphilis were colossal, and said that the support of the Government to the propaganda of the society was necessary from the health and economic point of view. Sir W. ARBUTHNOT LANE, having regard to the membership of the society, said that it ought to be called the "Suicide Club," as it consisted of a body of men who made their living out of the ravages of syphilis, and who were determined to restrain or abort those ravages.

The CHAIRMAN put the resolution to the meeting and declared it carried unanimously.

Mr. H. WANSEY BAYLY, the honorary secretary, said that the progress made during the seven months of the society's existence had been most encouraging.

Two public meetings, he said, were held in London, the first at the Central Hall, Westminster, and the second at the Mansion House, under the presidency of the Lord Mayor. Medical officers of health throughout Great Britain had been circularised on three occasions, with the policy of the society and had recommended that the opportunity of acquiring knowledge should be given in their districts. 20,000 pamphlets had been distributed, and 15,000 leaflets of directions on demand from various centres and individuals. Provincial and colonial branches had been established, and a strong Parliamentary Committee had been formed to further the aims of the society. On the whole, the press was sympathetic, and the lectures given under the auspices of the society on the prevention of venereal disease

THE LANCET.
The meeting closed.
The Chairman having moved that it be carried unanimously.
R. A. LISTER,
Chairman.
The meeting closed.
The Chairman having moved that it be carried unanimously.
R. A. LISTER,
Chairman.
The meeting closed.

(FROM...)

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were much appreciated. Mr. Wansey Bayly said that this society stood for the principle that it is immoral to withhold a scientific truth from the people the knowledge of which will diminish disease, pain, and sorrow. He therefore made an appeal to each member not to consider his obligations as ceasing with the payment of his annual subscription, but to act as a centre for the dissemination of knowledge, the increase of membership, and the collection of funds.

Sir JAMES CRICHTON-BROWNE and the Rev. HUGH CHAPMAN having spoken to the report, Dr. J. H. SEQUEIRA moved that it be adopted. This was seconded by Mr. R. A. LYSTER, and the adoption of the report was carried unanimously, the CHAIRMAN taking the opportunity of testifying to the zeal and hard work of Mr. Wansey Bayly.

The meeting closed with the usual votes of thanks.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Difficulty of the Dublin Hospitals.

AT present nearly all the voluntary hospitals in Dublin are handicapped by heavy debts. While their expenses have nearly doubled their subscriptions have fallen off. Eleven of them, for the sum of £100,000 to joint appeal to the public for the sum of £100,000 to pay off their debts. Sir Henry McLaughlin, who organised Red Cross appeals with great effect in Ireland, has taken on the duty of honorary organiser, and it is his intention to inaugurate an advertisement appeal by a fête to be held at Bale's Bridge last week to a public meeting were held in Dublin last week to elicit support for the hospitals, and the plans of the organisers were announced by the Lord Chancellor, Sir Henry McLaughlin and others. It must be admitted that the attendance at the meeting was disappointing, and so far there is little evidence of public interest being aroused. But from the point of view of the hospitals the situation is critical. They cannot keep their doors open unless they get solid financial support. Even the liquidation of their debts will be at best a temporary relief. Their normal expenditure cannot again be brought within their normal means. Some new source of income must be tapped, and it is a question for those concerned in hospital management to decide whether to seek voluntary, municipal, or State aid. It is interesting to note that the question of amalgamation of the Dublin hospitals, much discussed inside the profession last winter, is now being raised in lay circles. In a recent speech the Provost of Trinity College appealed to the public as to whether they were in favour of amalgamation or not, and there is no doubt an answer will have to be given. There may, indeed, be doubt as to whether amalgamation would cause any saving in money, but there can be no doubt that it would give greater efficiency.

Sir William Taylor's Knighthood.

The profession of Dublin has learned with much pleasure of the bestowal of the K.B.E. on Colonel William Taylor, formerly President of the Royal College of Surgeons in Ireland. He has been for many years one of the most prominent and active surgeons in Dublin. He was President of the College during two of the most strenuous years of the war. He has been consulting surgeon to the army in Ireland since early in the war, and he served abroad in the Dublin (83) General Hospital, the personnel of which he had organised at the invitation of the War Office. For his services in France he was mentioned in despatches and awarded the C.B.

The Housing Problem.

As a result of a recent inquiry held in Belfast, in an application from the city council for power to borrow £2,000,000 for the erection of houses, the Local Government Board has replied giving the corporation sanction to raise a loan of £500,000.

Health Exhibition.

The Health Exhibition organised by the Women's National Health Association and the Belfast Council

of Social Welfare visited, during the week commencing May 24th, the west side of the city of Belfast, and was located at the Foresters' Hall, Divis-street, where Dr. R. J. Rowlette (Dublin) lectured on "Physical Degeneration," showing by statistical and other evidence the risk of deterioration in physique; Dr. Prudence Gaffkin on "Child Welfare," illustrating the value from the practical work of welfare centres; and Professor St. Cl. Symmers on "Milk," emphasising the importance of clean dairying and of pure milk. During the week beginning May 31st the exhibition moved to the east side of the city, where it was housed in the Mountpottinger Y.M.C.A. Lectures were delivered on three nights by Dr. W. Calwell on "Health in the Schools," who pointed out the deplorable state of the primary school premises in Belfast, and showed that, according to the opinion of the medical officer of health of Belfast, there were, out of a total of 286, only 17 first-class schools. Of the remainder, 99 were classified as "good," 89 as second-class, and 81 as third-class, and the medical officer declared that as regards the latter nothing could be done. Mr. W. J. Gilliland, F.R.I.B.A., gave an address on "Housing," in which he condemned the Irish Local Government Board plans of housing, spoke of existing streets of working men's houses as "interrimable rows of unmitigated ugliness," and criticised severely the labour leaders for not allowing enough output. It was, he said, "not the workmen but the loud-mouthed demagogues who were to blame." Dr. H. L. McKisack lectured on "The Importance of a Healthy Mouth."

June 8th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Fization of Cyanides by Tuberculin.

TWO Lyons doctors, MM. Cordier and Morenas, have just discovered a new reaction of tuberculin, which may have an interesting bearing on the diagnosis of tuberculosis. They have proved that tuberculin fixes cyanides. When 3 drops of a 1 per cent. solution of tuberculin, are added to a solution of 1 in 100 solution of potassium ferrocyanide, and 25 drops of a 1 in 10,000 potassium ferrocyanide, and the anticipated deep blue colour is not obtained. With 10 drops of tuberculin the colour becomes grey, and with 6, pale blue. No other human protein appears to possess this power. Applied to tuberculous individuals, this reaction would seem superior to the albumin reaction of the sputum. It would be very useful in the examination of cerebro-spinal fluid in suspected tuberculous meningitis.

Researches on the Nature of Cancer.

Interesting progress appears to have been made in the researches on the nature of cancer now being carried out in the laboratory of the Collège de France by M. Champy. Repeating the well-known experiment of Carrel, he has kept alive, and even in active mitosis, fragments of living human tissue in special media, confirming the fact that the anatomical element in cultivation reproduces indefinitely cells of the same type, kidney cells producing kidney cells, epithelial cells producing epithelial cells, and so forth. However, on prolonging the experiment he has found that after passing through a large number of cultures the new cells lose their specific characters and become young indifferent cells, such as those seen in cancer. Cancer would thus seem to be not a parasitic disease, but a definite disturbance of the normal mode of regeneration of cancer at the site of an old scar or of a chronic inflammatory process. M. Champy has been able to obtain cells of a malignant type after long cultivation of cells from a benign tumour. It would appear that in the normal state this proliferation of new cells is controlled by an inhibitory power which disappears with age or in susceptible subjects.

Antityphoid Vaccination of Children.

Professor Vincent, of the School of Military Studies at Val-de-Grâce, to whom is due the use of antityphoid

vaccine prepared by sterilisation of typhoid bacilli by ether, organised during the war antityphoid vaccination of the whole army with a brilliant success, for, from the year 1918, the military typhoid mortality in France has been practically nil among 8 to 9 million mobilised men. Even at the present time cases of typhoid fever are rarely seen in the civil hospitals, and then almost always amongst the wives and children who have not undergone vaccination. The malady, however, flourishes still in the South, particularly in Provence. M. Vincent concludes that in order to bring about the extinction of the scourge it is necessary to enforce antityphoid vaccination on the civil population; it has been done for vaccination against small-pox; it is necessary to vaccinate preferably the adult, with a bearing better the vaccination than the infant. The rule of vaccination at the end of three years should not be very much altered. M. Vincent has been able to take as absolute, as M. Vincent vaccinated in Morocco follow up the cases of soldiers vaccinated, at least half in 1911 and who in 1920 still showed, at least half the number, an absolute immunity. When a person has been properly vaccinated, and those who have been long ago vaccinated and have not been revaccinated within the recognised period, and who contract afresh typhoid fever, only present a mild type of the disease. All children ought to be vaccinated, at least in districts where cases of typhoid fever still occur.

Anaphylactic Vomiting in an Infant Treated by Injections of Milk.

An interesting observation has just been reported at the Société de Pédiatrie by M. Gényvri. A newly-born infant exhibited an absolute intolerance to milk, which he vomited immediately. A dozen attempts to feed with milk of various sorts (concentrated, butter-milk, whey, human milk, and so forth) led to more or less severe attacks of fever, vomiting, and diarrhoea. The general decline was very rapid, when it was decided to give three subcutaneous injections, one every other day, of 8, 16, and 30 minims of sterilised cow's milk. The third injection was followed by a general and local reaction of the most violent description, with rigors, vomiting, and rapid alternations of temperature; but from this moment the infant tolerated milk by the mouth in progressive doses of 5, 10, and 30 g. a day, eventually reaching 300 to 350 g. The resumption of milk feeding brought about a rapid increase in the general condition. 2 kg., and a notable amelioration in the general condition. At the moment the baby will tolerate any sort of milk.

June 5th.

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS.

Aberdeen.—In the City of Aberdeen the number of children attending the public schools of all kinds during the year ending June 30th, 1919, was 30,879, of whom 26,093 were pupils at the 28 primary schools. Of these, 9335 were systematically examined in detail. An interesting table is given by Dr. George Rose, the school medical officer, showing the average heights and weights of the children in the year under review as compared with similar observations in 1912-13, before the war. Amongst boys, in two of the three age-groups (5 and 7 years), there was found in 1918-19 to be an increase in the average height as compared with these corresponding groups in 1912-13, the increases at the earlier ages of 5 and 7 years; while at 13 years old the average height was 0.2 inch less than in the pre-war year. Among girls there was a decrease in the average height in the 5 and 7 year age-groups; while in the 13-year children the average height was exactly the same as in the pre-war year. As regards weight, among the boys there was an improvement in each group, the increase being 0.4, 0.3, and 0.4 lb. respec-

tively. The girls, on the other hand, showed a lessened weight in each group, the average drop being 0.1, 0.2, and 0.5 lb. in the three age-periods respectively. These observations apply to 9261 children examined in 1919, and presumably a somewhat similar number in 1913. If similar comparisons were made throughout the country valuable data would be obtained as to the influence of war conditions on the nutrition of the juvenile population.

"There seems no reason for believing that the diminished consumption of sugar has been prejudicial to health, or that the margarine, which contains a certain amount of animal fat, is a satisfactory substitute for butter. As the present heights and weights of children compare favourably with those of pre-war times, we may conclude not only that the food allowance for children was sufficient in the amount of proteins, carbohydrates, and fats, but that there was in it a sufficient amount of vitamins, which is imperative for the health, nutrition, and growth of the young."

The condition as regards nutrition was considered to be either "average" or "above the average" in 94.5 per cent., and this in spite of the fact that from one to four decayed teeth were present in 60.2 per cent., and in 27.9 per cent. there were as many as five or more decayed. Delicate children, such as those suffering from malnutrition or anemia, or non-infectious tuberculous disease, have been sent to the Linnmoor Home, where they have a wide expanse of moor in which to play, and also to find shade and shelter. It was found that a stay of four to eight weeks generally added between 3 and 4 lb. weight to each child—as good a result as may be obtained by a six months' stay in an ordinary open-air home. Great improvement has taken place in the cleanliness of the Aberdeen school children, which formerly had been very defective; and not only the children, but the parents and the homes have been brought up to a decent level in this regard. The number of verminous children in the group of poorer schools has been reduced from 15.3 per cent. to 1.5 per cent., and actual dirtiness of the skin has fallen from 15.7 to 0.9 per cent. It is evident that the educational and medical authorities of Aberdeen have effected immense improvements in the last few years, and there is good reason to believe that these improved conditions will continue.

Bootle.—The county borough of Bootle has 12,993 children on the roll in the council and denominational schools, with an average attendance of 11,320. During the calendar year 1919 3683 children were inspected at the routine examinations. The number with some physical defect reached the very high percentage of 72.7, the most numerous ailments found being defective vision and squint (19.4), enlarged tonsils (2.2), and disease (7.1), malnutrition (6.8), adenoids (2.2), organic heart disease (2.2). The total percentage of defects, high as it is, was less than in any of the preceding four years, when it varied between 80.1 in 1918 and 87.5 in 1916; but was more than in 1914, when it was only 66.5. Dr. Allen Daley, the school medical officer and medical officer of health, draws attention in this report to what he very rightly calls "the alarming increase in the number of unvaccinated school children." The entrants found to be unvaccinated in 1914 were 9.7 per cent. of the total number examined; the proportion has increased to 12.6 in 1918 and 14.1 in 1919. The responsibility for this neglect lies in the first instance upon the parents; but the local vaccination authority rests with the legislature. This. Ultimate responsibility rests with the children. A comparison of the heights and weights of the children in the year under report with similar observations before the war, in 1913 shows that amongst boys there was a very slight increase in the average height in the 5-year old group (103.8, compared with 103.5 centimetres), that of the 12-year old group (136.1, compared with 135.5 centimetres), that of the former but larger increase in the girls there was a similar but larger increase in the 5-year olds (103.3, compared with 102.4 centimetres), but a decrease in the 12-year olds (137.3, compared with 138.0 centimetres). As regards weight, the 5-year old boys averaged 17.5 kilos (compared with 17.7 in 1913), but the 12-year old boys averaged 31.6, compared with 31.1 kilos in 1913. Among girls, the 5-year olds averaged 17.2 (compared with 17.1) and the 12-year olds 32.2

THE LANCET.]

(continued with there was any attention owing the times. Dr. that a considerable spectacles have found at inspection at home, or teachers should to wear glasses, as wishes to "responsibilities" to do that the greatest use clinic for remedial treatment, and, Liverpool School increased its treated rose "after review, after throat and skin generally, chronic ear dis, excellent institut to build an children in the pr has been given, and Child-W the treatment parents cannot a application of "prove economical

THRA

English and Wel- tary, with an nearly 13 million which had been weeks, further a population of rate was 110, the previous the rates ranged 55 in Leyton to and 27 in W. disease caused rate of 66 per 10 from infantile from diphtheria, Phositis and 20 from the of the town, had been 25, or further fell to : location, 15 in 1917 cases of dip treatment in 19 London Fever H at the end of 11 trified and adm cases of 30 of ti centid, of w Liverpool, and 3.

South Term, aggregate popul the annual rate to 142 in the 1910. The 29 rate of 135 pe million, 4 e ture, and 1 The 35 death 100, and in Carina. 1914 To annual nat persons each, the weight of the of 1914.

(compared with 32.5 kilos.). It cannot be said that there was any definite deterioration of health or nutrition owing to the special circumstances of the times. Dr. Daley draws attention to the fact that a considerable number of children for whom spectacles have been prescribed and obtained are found at inspection not to be wearing them. They are left at home, or broken. He recommends that class teachers should make lists upon these being worn. No wear glasses, and insist upon these being worn. No one wishes to add to the already heavy and manifold responsibilities of the class teachers, but there can be no doubt that their influence and authority would be of the greatest use in securing the desired result. The clinic for remedial exercises, massage, and electrical treatment, under Mrs. Cartwright, principal of the Liverpool School of Massage, continued and greatly increased its good work; the number of children treated rose from 71 in 1918 to 178 during the year under review. Instruction in breathing exercises and throat and nose operations, and chest expansion generally, and the treatment of stammering and chronic ear discharge, are amongst the activities of this excellent institution. The sanitary authority propose to build an annex to the Maghull Sanatorium for children in the pre-tuberculous condition; and sanction has been given, in response to a request by the Maternity and Child Welfare Committee of the Corporation, for the treatment of children under school age, whose parents cannot afford private medical attention. This application of the principle, *obstet principii*, is likely to prove economical in the long run.

URBAN VITAL STATISTICS.

URBAN VITAL STATISTICS
(Week ended June 5th, 1920.)
In the 96 En

(Week ended June 29).—In the 96 English and Welsh Towns.—In the population estimated at nearly 18 million persons, the annual rate of mortality, which had been 13·8, 13·2, and 12·8 in the three preceding weeks, further declined to 11·6 per 1000. In London, with a population of nearly 4½ millions, the annual rate was 1·0, or 1·1 per 1000, among the remaining towns the previous week, while in Acton, 4·3 in Eastbourne, and the others ranged from 1 in Carlisle, 2·0·5 in Barrow-in-Furness, and 2·7 in Leyton to 18·9 in Hartlepool. The principal epidemic of 1918 in England was due to measles, 5 and 20·7 in West deaths, which corresponded to an annual rate of 0·6 per 1000, and comprised 69 from measles, 58 from infantile diarrhoea, 41 from whooping-cough, 33 from diphtheria, 14 from scarlet fever, and 1·5 in the form of typhoid fever. Measles caused a death-rate of 1·5 in Kentish Town, 2·0 in Great Yarmouth, but the mortality from the remainder of the towns showed no excess in any of the towns. The deaths attributed to influenza, which had been 216, 211, and 183 in the three preceding weeks, were further led to 148, and included 42 in Sheffield, 19 in London, 13 in Manchester, and 1635 of scarlet fever under treatment in the Metropolitan Asylums Hospitals and 1747 cases of diphtheria in 1918 and 1703 respectively under treatment in Hospital, against one case of small-pox in London Fever Hospital during the week. Typhoid were notified and admitted to hospital during the week. There are now 30 of the 396 deaths in the 96 towns, which are certified, of which were registered in Birmingham, 1 Liverpool, and 3 each in London and Blackpool.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had declined from 12 in the four preceding weeks, further fell to 10·2. The 289 deaths in Glasgow corresponded to 11 males, 7 females, 12 of 135 per 1000, and included 10 from measles, 11 from whooping-cough and scarlet fever, and diphtheria, 4 each from typhus, scarlet fever, and diphtheria, and 1 each from typhus, scarlet fever, and diphtheria. The 35 deaths in Edinburgh were equal to a rate of 14·7, and included 2 from diphtheria and 1 from infantile diarrhoea.

In 1918 deaths in Dublin corresponded

Irish Towns.—The 149 deaths in Dublin corresponded to an annual rate of 18·7, or 0·4 per 1000 below that recorded in the previous week, and included 11 from whooping-cough, 3 from measles and infantile diarrhoea, and 1 from scarlet fever. The 116 deaths in Belfast were equal to a rate of 14·6 per 1000, and included 3 from infantile diarrhoea, and 2 each from enteric fever, whooping-cough, and diphtheria.

Dr. J. H. Conyers has been appointed a Member of the Executive Council of the Colony of British Guiana.

The Services.

ARMY FEES FOR CIVILIAN DOCTORS.

ARMY FEES FOR CIVILIAN DOCTORS.
CIVILIAN medical practitioners giving professional attendance to soldiers will now be paid day fees ranging from 3s. 9d. to 7s. 9d. according as the distances travelled vary from under one mile to under five miles. Night fees for similar distances will range from 5s. 3d. to 13s. 3d. Extra fees will be allowed for distances over five miles, but the limit for an out-patient will be £1.

ARMY MEDICAL SERVICE.
on half pay.

Col. R. J. Blackham is placed on half pay.

ROYAL ARMY MEDICAL CORPS.
Acting Lieutenant-Colonel

ROYAL ARMY MEDICAL CORPS.
Major R. V. Cowey to be acting Lieutenant-Colonel.
The undermentioned temporary Captains relinquish the acting rank of Major: M. C. Gardner, F. P. Joscelyne, R. B. Morshead, J. W. McKinney, D. B. I. Hallett, T. L. Hardy.
Capt. J. Y. Moore retires, receiving a gratuity, and is granted the rank of Major.
Temp. Capt. R. A. Warters relinquishes his commission on transfer to Territorial Service.
Temp. Capt. J. W. G. H.

GENERAL RESERVE OF OFFICERS.
Majors; J. W. G. H. Riddell, J. Y.

Late Captains, R.A.M.C., to be Majors: J. W. G. H. Riddell, J. Y. Farmer, W. T. Hare.

SPECIAL RESERVE OF OFFICERS.

Late Captains, R.A.M.C.
 Moore, A. L. Aymer, W. T. Hare.
 SPECIAL RESERVE: OF OFFICERS.
 Capt. W. F. McLean relinquishes the acting rank of Lieutenant-
 Colonel.
 TERRITORIAL FORCE.
 The Major.

TERRITORIAL FORCE.

TERRITORIAL FORCE.
Capt. W. A. Valentine to be Major.
The undermentioned Majors resign their commissions and retain the rank of Major: W. F. McAllister-Hewlings and P. McK. Terry.
The undermentioned Captains, resign their commissions and retain the rank of Captain: P. N. Crensch, S. Wyard, P. T. Catto, J. G. Hill, W. Fitzpatrick, A. Greene, J. G. McKinlay.
The undermentioned Lieutenants resign their commissions and retain the rank of Lieutenant: Capt. A. W. Falconer resigns his commission and is granted the rank of Lieutenant-Colonel.

ROYAL AIR FORCE.
J. Kyle

ROYAL AIR FORCE.
Medical Branch.—Flying Officers J. Kyle and C. T. O'Neill to be
 Flight Lieutenant. The undermentioned are transferred to the unemployed list:
 Cpts. J. Healy, F. L. Dickson, and Lieut. F. Gill.
Dental Branch.—Flight Lieut. C. L. McCallum to be acting
 Squadron Leader whilst employed as Squadron Leader.
 J. H. W. Fitzgerald granted a temporary commission as Flight
 Lieutenant.
 J. H. W. Fitzgerald granted permission to Temp. Capt. E. B. Jones
 to be acting Officer of the Order of St. Sava
 and St. George and St. Andrew and St. Nicholas.

The King has granted permission to Temp. Capt. E. B. Jones, R.A.M.C., to wear the Cross of Officer of the Order of St. Sava conferred upon him by the King of the Serbs, Croats and Slovenes in recognition of his services to the Serbian wounded in 1914-1915 under the auspices of the Serbian Relief Fund.

INDIA AND THE INDIAN MEDICAL SERVICE.

[illegible]

UNION DECORATIONS

FORLIERI, Belgian.
Médaille du Roi Albert.—Col. G. A. Moore, C.M.G., D.S.O.
French.
Médaille d'Honneur avec Glaises (en Termeil).—Col. A. M.C.
Ducat. D.S.O. A.M.S. (T.F.): Capt. M. Carson, O.B.E., M.C.
R.A.M.C. (S.R.): Capt. R. P. Pollard, M.C., R.A.M.C. (T.F.): Capt.
J. J. Scott, O.B.E., M.C., R.A.M.C. (S.R.).
Médaille des Epidémies (en Argent).—Temp. Capt. (acting Major)
J. R. Anderson, R.A.M.C.
Roumanian.
—The Star of Roumanian (with Swards).—Chevalier: Capt.
J. R. Anderson, R.A.M.C. (T.F.).

D. J. Scott, C.M.G., R.A.M.C. (T.F.).
 Médaille des Épidémies (en Argent).
 J. R. Anderson, R.A.M.C. Roumanian.
 Order of the Star of Roumania (with Swords).—Chevalier: Capt.
 D. C. L. Fitzwilliams, C.M.G., R.A.M.C. (T.F.).

Correspondence.

"Audi alteram partem."

THE STANDARDISATION OF COLOUR PERCEPTION.

To the Editor of THE LANCET.

SIR,—Mr. Herbert Parsons, in his letter to THE LANCET of June 5th, disclaims any intention to depreciate the work of Dr. Edridge-Green. But it is particularly noticeable that he has but little to say in its favour. Indeed, in the last paragraph the threat is implied of an intended tilt with Dr. Edridge-Green and his theories. Among the numerous psychologists, physiologists, ophthalmic surgeons, and others who have convinced themselves of the reality and accuracy of Dr. Edridge-Green's work no less than to the 100 per cent. of those who have failed to prove that any of his statements are wrong, the contemplated contest will doubtless be hailed as a welcome diversion in one of the most difficult of the by-paths of science. But Dr. Edridge-Green is a doughty champion; in the course of the 35 years' study of his subject he has fortified himself with an armour of research which has ensured for him victory in every contest in which he has been engaged.

It seems rather late in the day for Mr. Parsons to complain of the "judicial attitude" having been lost sight of in the reviews which have appeared of Dr. Edridge-Green's recent book. The ground of his complaint is that he thinks the author has been unduly praised for his work. Had this "judicial"—and not prejudicial—"attitude" been assumed during the many years in which Dr. Edridge-Green has struggled to gain a hearing for his theories, by the Royal Society and its clique of his opponents, the praise would have appeared not novel but natural. Again, if the Board of Trade lantern, in Mr. Parsons's opinion, is better than Dr. Edridge-Green's colour-perception lantern, how is it that the former should have been rejected and the latter chosen by the Royal Navy as the best? The fact, also, that Dr. Edridge-Green's lantern has been adopted by the navy of the United States, the Norwegian Navy, the India Office, and numerous other bodies, is obviously significant. Surely such a galaxy of support in favour of this lantern rather discounts Mr. Parsons's preferential opinion of the lantern in use by the Board of Trade. It is a curious argument to advance against Dr. Edridge-Green's lantern that it requires skilled knowledge to use it. Nevertheless, I think, the motive of your correspondent's letter.

I am, Sir, yours faithfully,

Wimpole-street, W., June 7th, 1920.

PERCY DUNN.

THE INDUSTRIAL SETTLEMENT FOR THE CONSUMPTIVE.

To the Editor of THE LANCET.

SIR,—While admiring in no small degree the distinguished preliminary work upon village settlements and industries which has been done at Papworth, I feel bound to disagree most heartily with the terminal portion of the article by Professor Sir G. Sims Woodhead and Mr. P. C. Varrier-Jones, which appeared under the above title in your issue of May 8th. The following lines appear:—

"It may be, indeed it has been, suggested that the village settlement is an expensive method of attaining an end that might be achieved by simpler and less costly means. Is it not possible, it is asked, and would it not be equally effective, to provide workshops in town where, under a special arrangement, these consumptives may work and earn their living? Emphatically, No!"

This, I take it, is a direct condemnation of the scheme I outlined in your issue of Feb. 21st, under the heading "The Municipal Workshop," and is totally unjustified. In that article I outlined a scheme of local workshops, together with active home education, to provide for the complete convalescence of the post-sanatorium cases for whom no colony can exist and for whom ordinary industrial employment constitutes a

practical death warrant. No single mode of campaign can rid us of consumption. The sanatorium, with its promised blessings, has proved to be but a link in the chain. Do not let us fall into the same trap with the village settlement and spend fortunes, which the country can ill afford, without a prospect of benefiting the community at large. The projected ten colonies for £1,000,000 will hold, roughly, 2000 ex-soldiers. What is to become of the other 38,000? Dr. N. D. Bardsley tells us that 60 per cent. of those in his area are already dead, and the rest will share the same fate before these settlements can be built. What provision can there be for 300,000 civilians? Must they be condemned to unemployment because they live in towns? Emphatically, No!

The special workshop, capable of indefinite expansion at small cost, near the patients' own homes, is the only method which can hope to cope with the numbers needing this assistance. We have yet to see that the houses, under improvement by education, will be materially detrimental to success. In Birmingham the mortality for men aged 35-45, being twice as great as the females of the same age, relieves the housing of most of the blame. As much will be done by education and improvement of social standards as by new housing.

Again, the town-dweller of the class catered for cannot be given country instincts at will. The craving for town life is irresistible, and many will return. Tuberculosis is a "social disease," and must be fought in its stronghold, the social life of the community. We need education and improved industrial conditions, with special provision in the form of "municipal workshops" for tuberculous labour, now almost entirely wasted.

I am, Sir, yours faithfully,

F. STANLEY TINKER, B.A., M.B.,

B.C., M.R.C.S., L.R.C.P.,

Tuberculosis Officer, North-East Surrey.

Wimbledon, June 3rd, 1920.

AGE AND VENEREAL INFECTION.

To the Editor of THE LANCET.

SIR,—The appended figures were given to me by a friend who did a very great amount of good work amongst V.D. patients as a Y.M.C.A. leader in France and later with the army of occupation on the Rhine. Several points are of special interest: (1) The early ages at which illicit coitus may and does begin. (2) The sharply defined maximum at the age of 18. (3) The rapid fall between the age of 18 and the age at which the men as a general rule get married. The cases were not picked and represent a series of 300 odd V.D. patients drawn from all parts of the rank and file of the B.E.F. Unfortunately, I have no figures of the exact ages of the patients nor any data of their marriages, &c. It is, however, thought that further research on these or similar lines might discover new means with which to combat and prevent venereal disease from the educational and moral points of view.

I am, Sir, yours faithfully,

G. G. JOHNSTONE, M.D.

Hampstead Way, N.W., June 7th, 1920.

Appended Table showing Analysis of 296 Cases at a Base V.D. Hospital in France.

A.	B.	C.	A.	B.	C.	A.	B.	C.
Age.	No.	%	Age.	No.	%	Age.	No.	%
8	1	0.3	18	66	22	25	—	—
11	2	0.6	19	35	11.6	26	2	0.6
12	4	1.3	20	26	8.6	27	4	1.3
13	1	0.3	21	23	7.6	28	5	1.6
14	11	3.6	22	13	4.3	29	2	0.6
15	18	6.0	23	7	2.3	30	—	—
16	26	8.6	24	9	3.0	31	2	0.6
17	39	13.0						

Col. A indicates the ages at which the patients stated that they first had illicit sexual intercourse.

Col. B gives the numbers going wrong for the first time at the different ages.

Col. C gives the percentages of the whole going wrong for the first time at the different ages.

To the Editor of THE LANCET.

AND
To the Editor of THE LANCET.

SIR,—In answer to Dr. Blair Bell's reply in THE LANCET of June 5th to my letter published in the issue of May 16th, I beg to point out that Dr. Blair Bell appears to labour under some erroneous notions. He says I was to may under some being destructive, and apparently subversive without being destructive. But I believe any thinks I wished to my letter will see that instead unprejudiced reader of my letter will be constructive; and, indeed, strove to elucidate the riddle of how plastic visceral procedures are of value in the treatment of prolapse.

inferred, strove, and was not a little surprised to find that the
visceral procedures are of value in the treatment of the disease.
prolapse.

Another erroneous notion, which Dr. Blair Bell
appears to hold, is that my impressions of prolapse
are nebulous. May I assure Dr. Blair Bell that my
are nebulous. My impressions are anything but nebulous.
"Impressions" of prolapse are at this subject without
I have not laboured since 1908 at this subject without
obtaining some clear and coherent ideas concerning it.
and, certainly, I am prepared to argue with Dr. Blair Bell
on it. It is true he may not understand my words, but
"strange and obscure phrases," and my argument, but he tells
"cannot help that." If he wants to learn—and he tells
he is still a student—"and nebulous." If he
wants to ignore my work, he can do so, and since he is
so satisfied with his treatment of prolapse, there is no
reason why he should pay attention to me. Criticism
letters to THE LANCET, I take it, are not merely interesting
body of your readers who may happen to be interested
in the subject, and may be led astray by the *couleur de*
rose of an author. In his letter, it appears to me that Dr.

In the sequel, and may be believed to be
 of the author.
 Judging from his letter, it appears to me that Dr.
 Blair Bell's own ideas on prolapse are somewhat
 nebulous. He does not seem to understand the mean-
 ing of the word "floor"; or, if he does, he supposes that
 the ligaments, with other
 utero-sacral and utero-pubic ligaments, the cervix, form a
 connective tissue attachments
 floor for the pelvis he is, I submit, hopelessly in error.
 If he really regards "the concerned," the rectum, floor
 with which he is attributing such importance to
 these pelvis, why does he not attribute such importance
 to these other structures and how does he come cannot run
 on them at all hunt with the bounds. Nor does
 with the hare and hunt with the meaning of the
 Dr. Blair Bell seem to understand the meaning of the
 word "congenital." He is quite at liberty to call solitary
 extrusion of the cervix occurring in adolescent and old
 virgins congenital prolapse. He may call it what he
 will.
 But the question is whether thinking that these
 accept his teaching. If so, why does he not publish it?
 cases are congenital? If so, why does he not publish it?
 for an original and new idea as to
 of an original and new idea as to

nesses are congenitally defective. The original procedure I offered in my letter on visceral procedures are of service in the way plastic visceral procedures are of service in otolaryngology. But Dr. Blair Bell appears not to understand this idea. He refers to it ironically in passing; its basis is presented in "another strappado phrase." He apparently does not want ideas; he wants "facts and figures." I object to this attitude altogether. The value of statistics is well known; they can be "wangled" to show anything. What is required, I submit, is not facts and figures, but an interpretation of facts and figures. In his lecture Dr. Blair Bell gave us plenty of facts but no interpretation of them; as to figures, we have a 99 per cent. cure out of 400 cases. But, conclude these, we have some interpretation—that many of these, we have some treatment. . . . that Dr.

have a 99 per cent. chance of success in the treatment.
 concerning that, we have some hope. "hat Dr.
 pasted get well, whatever the plans hope
 In conclusion, may I express the plans hope "hat Dr.
 Blair Bell may attain the ambition of the surgical treatment of
 prolapse of the "zentum." of the tedious business
 prolapse? has been a long students of its history
 prolapse? as far as we have, as students of its history
 setting as far as we have, as students of its history
 setting and men are still doing. As regards my own
 ideas of advance—my methods and figures of Dr.
 Blair Bell may rest assured they will be published in
 my own good time.

Yours faithfully,
 R. H. PARAMORE.

I am, Sir, yours faithfully,
R. H. PARAMORE.

THE FOUNDATIONS OF PITY.
NUMBER OF THE LANCET.

To the Editor of THE LANCET.

THE FOUNDATION.
To the Editor of THE LANCET.
SIR,—Your interesting article on the Prophylaxis of Shell Shock in THE LANCET for May 29th attributes the drawing of the distinction between pity as an emotion and pity as a motive to Robert Louis Stevenson. Dr. John Brown, however, in his immortal "Rab and His Friends" published in 1856, in reference to the students running to the operating-theatre to get good seats for witnessing the removal of poor Alice's breast, says :—
"I think them heartless; they are neither better nor worse than the rest of the world. They are not inhuman horrors, and into the bargain they are not hypocrites. They are not pity, as you call it, but they are not the pity of the physician."

"Don't think them heartless: they are neither better nor worse than you or I; they get over their professional horrors, and into their proper work; and is there pity, as an emotion, ending in itself or at best in tears and a long-drawn breath, lessens,—while pity, as a motive, is quickened, and gains power and purpose. It is well for a poor human nature that it is so."

I am, Sir, yours faithfully,
J. DUNDAS GRANT.

I am, Sir, yours faithfully,
J. DUNDAS GRANT.

Harley-street, W., June 4th, 1920.

Medical News.

ERSON COLLEGE WAR MEMORIAL FUND.—A meeting of old Epsomians interested in the war memorial was held at the offices of the school, 49, Bedford-square, W.C., on Thursday, June 24th, at 5 P.M. To discuss the immediate erection of a tablet of remembrance, as the committee appointed to begin the fund rebuilding for some time past. To meet the committee specially appointed to collect subscriptions and donations. 3. To decide on the form which the tablet is to take.

UNIVERSITY OF CAMBRIDGE.—The sum of £165,000 has been received for the building and maintenance of a department of biochemistry on a site provided by the University and for the endowment of a chair and readership, the benefaction is derived from the residual estate of the late Sir William Dunn, who appointed the directors of the Commercial Union Assurance Co. as trustees for its completion.

UNIVERSITY COLLEGE, LONDON: A DEPARTMENT OF APPLIED STATISTICS.—The new buildings presented by Sir Herbert Bartlett to University College, London, to serve as a Department of Applied Statistics, were opened, last week by buildings open, emphasised the fact of our declaring applied statistics, and implied that many of the figures were in an incomplete and unsatisfactory condition. He pointed out that Professor Addison, as Galton professor, had, with the assistance of his staff, turned the department administration services during the war, especially to the Department of Munitions, and he thought through the Department to equip at its generosity, a grand appeal for Sir Herbert Bartlett's generosity, magnificent premises due to which the use of applied statistics, many directions escape the notice of medical men, and the necessary directly escape the notice of them, as well as his scientific work in relation to mortality, who regally concerned with the figures of mortality, being taking, and of disease incidence, whereas the study for example, anatomy and heredity equally demand accurate mathematics.

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THE BOARD OF EDUCATION has notified that the Draft, dated March 19th, 1920, of the Board of Education (Higher Education, Medical Inspection and Treatment) Regulations, 1920, has been published for the required period, and has now been confirmed by the Board without amendment. The Draft now becomes the Board of Education (Medical Inspection and Treatment, Higher Education) Regulations, 1920, dated May 20th, 1920, and copies can be purchased through any bookseller (price 1d.), or directly from H.M. Stationery Office, Imperial House, Kingsway, London. W.C.2 (price by post 1½d.).

LONDON DERMATOLOGICAL SOCIETY.—The annual general meeting of this society will be held at 4.30 P.M. on Tuesday, June 15th, at St. John's Hospital, 49, Leicester-square, W.C., when the election of officers will take place. The nominations of the council for principal offices are as follows: President, Dr. R. Prosser White; honorary treasurer, Dr. W. Knowlesley Sibley; honorary secretary, Dr. Maurice G. Hannay. At 4.45 P.M. clinical cases will be shown.

INDIAN MEDICAL SERVICE DINNER.—The annual dinner of the Indian Medical Service was held at the Trocadero Restaurant on Tuesday, June 8th. The chair was taken by Major-General G. F. A. Harris, C.S.I., and more than 70 members were present. There were no set speeches, but Colonel R. H. Elliot and General Sir Havelock Charles spoke on the subject of the suggested alterations in the conditions in the Service, and pointed out that though the improvements were not all that might be desired, yet they were all that could be obtained at the present time, and that they constituted an enormous advance on the conditions now obtaining. Stress was laid on the services in this connexion of the *British Medical Journal* and its editor, Dr. Dawson Williams. The following members were present:—

Major-Generals: Sir R. Havelock Charles, T. Grainger, P. Behr. Colonels: C. W. Carr-Calthrop, J. Crimmin, V.C., Sir P. J. Freyer, C. M. Goodbody, D. E. Hughes, G. B. Irvine, W. H. Ogilvie, J. J. Pratt.

Lieutenant-Colonels: A. Alcock, W. G. P. Alpin, J. Anderson, W. R. Battye, D.S.O., A. T. Down, R. Bryson, J. T. Calvert, R. H. Castor, D. G. Crawford, C. Duer, R. H. Elliot, F. F. Elwes, S. C. Evans, A. B. Fry, G. H. D. Gimlette, T. A. Granger, H. Greeny, A. W. M. Harvey, J. G. Hulbert, C. H. James, S. P. James, J. Lloyd Jones, J. G. Jordan, R. W. Knox, Clayton Lane, S. Little, T. R. Mulrooney, R. A. Needham, A. H. Nott, S. Browning Smith, R. F. Standage, R. Steen, T. H. Symons, W. H. Thornhill, J. H. Tull Walsh, Eliacott L. Ward, J. W. Watson, H. R. Woolbert, H. G. L. Wortel, A. C. Younan.

Majors: W. M. Anderson, A. Cameron, S. Chuckerbutty, R. G. G. Croly, J. Forrest, C. A. Godson, E. T. Harris, A. H. Napier, E. S. Hipson, M. Purvis, J. J. Robb, W. C. Ross, W. R. J. Scroggie, F. E. Wilson.

Captains: U. J. Bourke, W. B. Keyworth, N. N. G. C. McVean, J. G. H. Shand, H. Stott. The guests were the editors of the *British Medical Journal* and *The Lancet*.

ROYAL NAVY MEDICAL CLUB: ANNUAL DINNER.—The annual dinner of the Royal Navy Medical Club took place at the Trocadero Restaurant on May 28th. The Medical Director-General of the Navy, Surgeon Rear Admiral Sir Robert Hill, K.C.M.G., C.B., C.V.O., presided. The guests of the evening were Sir George Lenthal Cheatle, K.C.B., C.V.O., and Surgeon Commander E. J. Steegman, O.B.E., R.N.V.R. The following members were present:—

Surgeon Rear Admirals: P. W. Bassett-Smith, C.B., C.M.G.; W. Bett, M.V.O.; J. Chambers, C.M.G.; G. A. Dreaper; D. T. Hosken; Sir D. J. P. McNabb, K.B.E., C.B.

Surgeon Captains: O. W. Andrews, C.B.E.; C. M. Beadnell; E. C. Cridland; J. F. Hall, C.M.G.; M. H. Knapp; F. W. Parker, O.B.E.; L. A. Penfold, D.S.O.; W. H. S. Stalkart.

Surgeon Commanders: E. L. Atkinson, D.S.O.; A. R. Banlark, C.V.O.; K.H.P.; G. D. Bateman; C. T. Baxter; K. D. Bell; R. St. G. S. Bond; C. J. L. Cook; F. J. A. Dalton, C.M.G.; J. S. Dudding; J. H. Ferguson; A. F. Fleming, D.S.O.; A. Gaskell, C.B.; O.B.E.; R. Hughes; W. W. Keir, C.M.G.; H. A. Kellond-Knight; R. H. McGiffin, O.B.E.; P. M. May; N. S. Meiklejohn, D.S.O.; J. O'Hara; H. P. Peck; S. Beach; M. L. B. Reid, O.B.E.; A. A. Ross; J. Stoddart; E. Sutton, C.M.G.; J. A. Thompson; A. J. Wernat.

Surgeon Lieutenant Commanders: J. H. B. Martin; F. L. Smith; H. E. B. Stephens, O.B.E.

CONFERENCE ON MATERNITY AND CHILD WELFARE.—In connexion with the Baby Week celebrations conferences will be held at Leeds on June 30th, at Manchester, Brighton, Bradford, and Wrexham early in July, and at Crewe in September. The subjects to be discussed will include (a) Widows' Pensions; (b) The Home and its Substitutes for the Care of Young Children; (c) Infant Welfare Work; (d) The Decay of Parenthood. Local health, sanitary, maternity and child welfare, and Poor-law authorities throughout the country, as well as voluntary organisations, are cordially invited to appoint delegates to attend the conferences, and all persons interested will be welcomed. Further particulars and tickets (1s.) will be forwarded on application to Miss Halford, secretary National Association for the Prevention of Infant Mortality, 4, Tavistock-square, London, W.C.1.

DOWN TUBERCULOSIS SANATORIUM.—As a result of the Local Government Board's recent inquiry into the application of Down County Council for sanction to borrow £27,000 for the purpose of purchasing Craigavon as a sanatorium for consumptives, the County Council has received from the Board a letter stating that:—

"In the Board's view the main issue raised in the inquiry turns on the conflict of public interest—on the one hand of the need of county Down patients for tuberculosis treatment, and on the other of the welfare of Belfast. Seeing that the Belfast Corporation as the local authority have publicly, and on grounds which were as refuted, represented the scheme of the Down County Council as injurious to the development and progress of the county borough, the Board can only come to the conclusion, though with some regret, that the proposition is not one to which they should offer facilities by consenting to the application of a loan."

THE SALARIES OF SCHOOL MEDICAL OFFICERS.—The Devon Education Committee recently advertised in the daily press for a school medical officer at a salary of £400 to £500 per annum. There was one applicant, who received the appointment, but within a few hours he withdrew from the post. A "locum tenens" was then appointed at a salary of 10 guineas weekly. At the last meeting of the committee a discussion took place upon the matter, some of the members wishing that the usual salary of £500 to £550 a year should be given to the school medical officer, but eventually it was decided to ask the present "locum" if he would take the appointment permanently at the salary of £400 to £500 per annum. The county medical officer of health, however, informed the committee that its offer would be quite useless.

SOUTHMEAD INFIRMARY, BRISTOL.—The Guardians' Infirmary at Southmead has been in the hands of the army authorities since its completion in August, 1914. The guardians had not previously been using the building, which was actually finished only after the army authorities had entered into possession. The medical staff now arranged for the institution is as follows: Medical superintendent, Mr. R. H. Norgate, for many years medical officer at the Stapleton and Eastville Institutions; two assistant medical officers about to be appointed. The guardians have also arranged, as a commencement, to appoint as visiting or consultant medical officers: Physician, Dr. J. A. Nixon; surgeon, Dr. H. G. Kyle; physician for children's diseases, Dr. O. C. M. Davis; surgeon for diseases of the ear, nose, and throat, Dr. E. Watson-Williams; dental surgeon, Mr. George F. Fawn.

PROPOSED AMALGAMATION OF BRISTOL HOSPITALS.—The present position of the plans for union of the Bristol hospitals is that, although some progress has been made, the uncertainty as to the attitude of the General Hospital prevents any active steps being taken. This uncertainty will probably be resolved before long, as the hospital governors are called for a meeting in a few days' time. The following resolution, passed at a special meeting of the Hospital Committee on May 18th, will be laid before the governors:—

That the committee of the Bristol General Hospital, after careful consideration and full discussion with the members of the honorary staff, record their opinion that, in view of the uncertainty of the provisions of the Bill which it is understood is now being prepared by the Ministry of Health, they cannot see their way to accept the suggested scheme of amalgamation of the Bristol hospitals, particularly having regard to its proposal for the immediate and irrevocable transfer of all the buildings, investments, and other assets to a new authority. The committee will, however, gladly consider any proposals for co-operation or coordination which are calculated to benefit the sick and improve medical education.

This resolution has an air of finality about it, but since it was passed two things have happened which may perhaps furnish a foundation for some discussion. The first is the publication of the interim report of the Medical Consultative Council. This removes some of that uncertainty as to the future of hospitals which the resolution expressed, and shows (with peculiar force, inasmuch as Bristol is the "teaching hospital" centre of the Consultative Council's illustrative map) that the supreme position in the projected grouping of hospitals will go to that one which is closely allied to a medical school. The second event which bears upon the resolution is the acceptance by the Children's Hospital of the amalgamation scheme, on condition that its buildings are used for a children's hospital and not diverted to another purpose. On the one hand, this may be regarded by the General Hospital as a precedent which it might usefully adopt, i.e., of joining the proposed amalgamation on condition that its buildings and invested capital were reserved for those purposes for which they were originally accumulated. On the other hand, the union of the Royal Infirmary and the Children's Hospital will in any case enable Bristol to play the part of "teaching hospital" centre to the South-West of England, for the two hospitals together provide over 500 beds in close contiguity with the University, and the General Hospital may feel that since this purpose is thus provided for, it has no need to aspire to any position above that of the "secondary health centre" of Dr. Dawson's report.

THE LANCET, 1

MEDICAL NEWS.—PARLIAMENTARY INTELLIGENCE.

[JUNE 12, 1920 . 128.]

THE LANCET, MEDICAL
THE INCORPORATED SOCIETY OF TRAINED
MASSAGES.—The annual Members' Conference will be
opened on June 24th at Mortimer Hall, Mortimer-street,
London, by Professor Arthur Keith.
NURSING ASSOCIATION.—The annual
meeting will be held on Thursday

OVERSEAS NURSING ASSOCIATION.—The annual meeting of this association will be held on Thursday, June 24th, at 3.30 p.m., at Norfolk House, St. James's-square, S.W., by permission of the Duchess of Norfolk, where Princess Beatrice will be present. Viscountess Grey will be the meeting of supporters.

48TH GENERAL HOSPITAL.—The first annual dinner of this unit will take place at the Piccadilly Hotel (Adams' Room), London, W., on June 24th, at 7.30 p.m. Dinner 21s., exclusive of wines. Those who intend to be present are asked to communicate at once with Dr. B. J. H. Princeps, 48th General Hospital, Bradford.

ROYAL INSTITUTION.—A general meeting of the members of the Royal Institution was held on June 7th, Sir James Crichton-Browne, Treasurer and Vice-President, in the chair, when the special thanks of the members were returned for a gift of £1000 in the name of the late Dr Frederick D.C. Cane Godman, F.R.S., per Dame Alice Godman, D.B.E.

CLOSED.—In view of the paralysis of the

2 Frederick Du Cane Godman, D.B.E.
3
4 **A GREAT HOSPITAL CLOSED.**—In view of the
5 financial position of the National Hospital for the Paralysed
6 and Epileptic, Queen-square, W.C., the board of management
7 has been obliged to close the in-patient department and has
8 directed that no further patients are to be admitted after
9 the current week. Notice has been sent to the 144 patients
10 on the waiting-list that they cannot be taken in.

directed to the current week. Notice is given on the waiting-list that they cannot be taken in.

LONDON SCHOOL OF CLINICAL MEDICINE: The course of operative surgery, specially adapted to the needs of general practitioners, will be held from June 21st to July 28th, meeting on Mondays, Tuesdays, and Wednesdays at 2 p.m. The inclusive fee for the course is 10 guineas, and applications should be made to the Dean at the Women's Hospital, Greenwich, from whom further particulars can be obtained.

THE SPRING SOCIETY.—The spring

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Parliamentary Intelligence.

HOUSE OF COMMONS
JUNE 2ND.

[illegible]

THURSDAY, JUNE 3RD.

THURSDAY, JUNE 30
Salaries of Medical Men
Minister of Pense

THURSDAY, JUNE 10.

Salaries of Medical Men.

Mr. STROOD asked the Minister of Pensions whether his attention had been called to the advertisement issued by the Minister of Health in relation to salaries of £1,000, rising to £1,400 per annum, with pension rights, &c.; whether these appointments were calculated to attract medical officers to the Ministry of Pensions; and whether he could suggest to the medical staff employed in the Ministry of Pensions.—Mr. MACPHERSON replied: My attention has been drawn to the advertisement in question, which related to certain permanent appointments in the Ministry of Health of a technical character requiring special scientific qualifications. It is, of course, open to medical members of the scales to accept the candidature, but I cannot undertake the nomination of the temerary who were settled so recently in the Ministry of Pensions last year. It is not very possible to fore-see the permanent medical arrangements which will be necessary for the purposes of the Ministry.—Major NALDER: Is it not right honourable gentleman taking any steps to increase the number of medical men in appointments such as this?—Mr. MACPHERSON: Oh, yes; quite a large number of displaced medical men are now on the staff.

National Insurance Finance.

Mr. MACPHERSON said that the Ministry of Health if he would

National Insurance Finance.
Minister of Health

Mr. MACPHERSON said that the ablest medical men are now on the staff.

National Insurance Finance.

Major BARNES asked the Minister up to March 31st, 1920, say what amounts had accumulated out of national health insurance to meet the liabilities arising out of the estimated annual increase and in what hands; what was the estimated annual increase and in what hands; what was the estimated annual liability on the Act recently passed; what was the annual increase would be caused by increasing the benefits in the Act recently passed so as to make them 40 per cent. greater than under the Act of 1911; and what annual increase would be caused if the benefits to women were on such increased basis made equal to men? Dr. ADDISON replied: With regard to the first part of the question, the moneys accumulated under the National Health Insurance Acts up to March 31st, 1920, are as follows: Invested in the hands of Approved Societies £1,111,740 (not in their behalf in securities selected by them under Section 56 of the National Insurance Act, 1911); £229,000,000; investments in the hands of the National Debt Commission, under Section 54 of the National Insurance Act, 1911, cost £47,500,000; balances of cash in the hands of Approved Societies £1,500,000. Under the National Insurance Act, 1920, the estimated liability in respect of contributions to the Act, for the period July, 1920, to June, 1921, is £36,600,000, of which £14,400,000 will be payable by insured persons, £15,350,000 by their employers, and £6,900,000 by the State. Disallowance, and maternity benefits were increased by 140 per cent. for those provided by Parliament. If sickness, disablement, and maternity benefits were increased by 140 per cent. in the third part of the question, the scheme would be increased by £17,950,000, of which £3,400,000 would fall on the Exchequer and the balance of £14,550,000 on the employers. Under the last part of the question, the total cost on the basis indicated would be still further increased by £2,600,000 of which £700,000 would be payable by the State.

MONDAY, JUNE 7th.

MONDAY, JUNE 7th.

MONDAY, JUNE 14TH
Pensions Medical Boards.
Pensions Min

[illegible]

Appointments.

DOWNES, H., M.B., C.M. Edin., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer of Health for the Chard (Somerset) Rural District Council.
 FAIRCLOUGH, H., M.B., B.S. Dunelm., Medical Officer in charge of the X Ray and Electrical Department, Royal Infirmary, Sunderland.
 MACKENZIE, M., L.R.C.P. & S. Edin., Certifying Surgeon under the Factory and Workshop Acts for Stornoway.
 WELSH, SYBIL I., M.D. Lond., M.R.C.P., Junior Assistant Physician at the Elizabeth Garrett Anderson Hospital, Euston-road, N.W.
 WHITLEY, W. F. J., M.D. Edin., D.P.H. Oxf., Medical Officer of Health for the County of Northumberland.

Vacancies.

For further information refer to the advertisement columns.

Aylesbury, Royal Buckinghamshire Hospital.—H.S. £200.
 Aylesford, Preston Hall.—M.O. £800.
 Barnet, Wellhouse Hospital.—Res. Asst. Med. Supt. £250.
 Barnsley County Borough.—M.O.H. £850.
 Barrow-in-Furness County Borough.—Asst. M.O.H. and Clin. Tuberc. Officer. £500.
 Battersea General Hospital (Incorporated), Battersea Park, S.W.—Res. M.O. £200.
 Birmingham General Dispensary.—Res. M.O. £400.
 Birmingham, Queen's Hospital.—Three H.P.'s, three H.S.'s, Obstet. and Ophthal. H.S., and Cas. H.S. £90 each.
 Bradford City.—Asst. Bacteriologist. £500.
 Brentwood Mental Hospital, Brentwood, Essex.—Locum Tenens Asst. M.O. £7 7s. per week.
 Brighton, Hove and Preston Dispensary.—Res. M.O. £200.
 Brighton, New Sussex Hospital for Women and Children, 4-6, Ditchling-road.—Asst. S. and Asst. Anesth.
 Bristol General Hospital.—Cas. H.S. £175.
 Bristol Royal Infirmary.—H.S.'s, H.P.'s, Obstet. H.S., Cas. O., Ophthal. H.S., and Dent. H.S.
 Bristol, Southmead Infirmary.—Two Asst. Res. M.O.'s. £300.
 Burnley, Victoria Hospital.—H.S. £250.
 Bury County Borough.—Venereal Diseases Officer. 3 guineas a session.
 Bury St. Edmunds, West Suffolk General Hospital.—H.S. £200.
 Cambridge, Addenbrooke's Hospital.—H.P. and H.S. £130 each.
 Camerons Hospital, West Hartlepool.—H.S. £300.
 Cardiff City Mental Hospital, Whitechurch, near Cardiff.—Second Asst. M.O. £350.
 City of London Hospital for Diseases of the Chest, Victoria Park, E.—Asst. M.O. £150.
 City of London Maternity Hospital, City-road, E.C.—Res. M.O. £100.
 Coventry Education Committee.—School Dentists. £400.
 Croydon County Borough.—Asst. M.O.H. and Asst. Sch. M.O. £500.
 Derby, Derbyshire Hospital for Sick Children.—Female Res. M.O. £150.
 Doncaster Royal Infirmary and Dispensary.—Asst. H.S. £225.
 Dumfries and Galloway Royal Infirmary.—Res. H.S. and Asst. H.S. £150 and £75.
 East Suffolk County Education Committee.—Dental Surgeon. £500.
 Asst. School M.O.'s. £500.
 Enham Village Centre for Disabled Ex-Service Men, near Andover, Hants.—Asst. Med. Director. £500.
 Erith Education Committee.—Medical Man.
 Essex County Council and Tendring Rural District Council.—Asst. County M.O.H., &c. £600.
 Fulham Infirmary, St. Dunstan's-road, Hammersmith, W.—Jun. Asst. M.O. £300.
 Gloucestershire Royal Infirmary and Eye Institution.—H.P. £175.
 Gravesend Hospital.—H.S. £200.
 Hackney Metropolitan Borough.—M.O.H. £1000.
 Halifax Royal Infirmary.—Senior, Second, and Third H.S.'s. £350, £300, and £275 respectively.
 Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—H.P., Cas. S.O., Cas. M.O. £150 each.
 Hospital for Sick Children, Great Ormond-street, W.C.—P. Also Cas. M.O. £200. Also Med. Reg. and Path. £200.
 Huddersfield Royal Infirmary.—Sen. H.S. £250.
 Hull Royal Infirmary.—Sen. H.S. £200. Asst. H.S. £150.
 Huntingdonshire County Council.—Female Asst. County M.O. and Asst. Sch. M.O. £500.
 Kensington Board of Guardians Institutions, Marlborough-road.—Fourth Asst. Res. M.O. £250.
 Leamington Spa, Warnford, Leamington, and South Warwickshire General Hospital.—Hon. S. Also Res. H.P. £200.
 Leeds Public Dispensary.—Res. M.O. £200.
 Leicester, City Mental Hospital, Humberstone.—Asst. M.O. £600.
 Also Locum Tenens Asst. M.O. 10 guineas per week.
 Leicestershire County Council.—Female Asst. Sch. M.O. and Asst. Infant Welfare M.O. £500.
 Lindsey County Council.—Female Asst. M.O. £550. Also Asst. Tuberc. O. and Asst. Sch. M.O. £550.
 London County Council Hospital Service.—Sixth and Seventh Asst. M.O.'s. £500.
 London Lock Hospital, 91, Dean-street, Soho, W.—Clin. Assts.
 London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £500.
 Maidstone, Kent County Mental Hospital.—Jun. Asst. M.O. £300.
 Manchester, Ancoats Hospital.—H.P. £150. Also Two Jun. H.S.'s. £100.
 Manchester, Manall FEVER Hospital.—Sec. Med. Asst. and Third Med. Asst. £300 each.
 Manchester Royal Eye Hospital.—H.S. £120.
 Manchester Royal Infirmary.—H.S.'s.
 Middlesex Hospital Medical School, W.—Senior Demonstrator in Physiology. £350.
 Middleton-in-Wharfedale Sanatorium, near Ilkley.—Asst. M.O. £500.
 Miller General Hospital for South-East London, Greenwich, S.E.—Res. Cas. O. £150. Also H.S. £100.
 Ministry of Pensions, Medical Services Department.—Jun. Ex. M.O.'s. £300.
 Newcastle-upon-Tyne, Hospital for Sick Children.—Sen. and Jun. Res. M.O.'s. £250 and £200 respectively.
 Newcastle-upon-Tyne, Royal Victoria Infirmary.—Two Hon. Secy. Registrars.
 Newport, Mon., Royal Gwent Hospital.—Two Res. M.O.'s. £200 and £180 respectively.
 Northampton General Hospital.—H.S. and H.P. £200 each.
 Nottingham City Asylum.—Second Asst. M.O. £400.
 Nottingham General Hospital.—Cas. H.S. £300. H.P. £200. Holby Locum Tenens. £7 7s. a wk.
 Nottingham, Notts County Council.—Female Asst. Child Welfare M.O. and Asst. Sch. M.O. £500.
 Portsmouth Education Committee.—Asst. School M.O. £500.
 Portsmouth Royal Hospital.—H.S. £150.
 Powick, Worcester County and City Mental Hospital.—Jun. Asst. M.O. £300.
 Prince of Wales's General Hospital, Tottenham, N.—Jun. H.P. £120. Also Clin. Assts.
 Putney Hospital, Lower Common, Putney, S.W.—Hon. Radiologist.
 Rochdale Infirmary and Dispensary.—Sen. H.S. £250.
 Roll of Honour Hospital for Children, 688, Harrow-road, W.—Female Anesth. £90.
 Rotherham Hospital.—Jun. H.S. £150.
 Royal London Ophthalmic Hospital, City-road, E.C.—Sen. H.S. £100. Also Asst. S.
 Royal Waterloo Hospital for Children and Women.—Jun. Res. M.O. £100.
 St. Margaret's Hospital, Leighton-road, Kentish Town, N.W.—Medical Specialist in Diseases of Children. 200 guineas.
 St. Mary's Hospital, Paddington.—Secretary. £800.
 Salop County Council.—Two Asst. M.O.'s. £517 10s.
 Sheffield Royal Hospital.—Asst. Cas. O. £150.
 Sheffield Royal Infirmary.—H.P. and H.S. £150 each.
 Shoreditch Hospital, 204, Hoxton-street.—Third Res. Asst. M.O. £325.
 Shoreham, Lancing College.—Res. M.O. £500.
 Shrewsbury, Royal Salop Infirmary.—H.P. £200.
 Singapore, Straits Settlements, Health Department.—Asst. Health Officer. £750.
 South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.P. £100.
 Stafford, Staffordshire General Infirmary.—H.S. £250.
 Stannington, Newcastle-upon-Tyne, Mental Hospital.—Locum Asst. M.O. 7 7s.
 Stockport Infirmary.—Jun. Res. M.O. £200.
 Stortford Hall Asylum, Kirkburton, near Huddersfield.—Asst. M.O. £400.
 University of London, King's College for Women, Household and Science Department.—Chair of Physiology. £800.
 West Bromwich and District Hospital.—Res. H.S. £200.
 West London Hospital, Hammersmith, W.—H.P. £250. Also Clin. Assts.
 Westminster Hospital, Broad Sanctuary, S.W.—H.S.
 Whitehaven and West Cumberland Infirmary.—Res. H.S. £225.
 Wigton Infirmary.—Hon. S., P., Asst. S., and Asst. P.
 Wilts County Council.—Asst. County M.O.H. and Asst. Sch. Med. Inspect. £600.
 The Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Liverpool.

Births, Marriages, and Deaths.

BIRTHS.

ALTOUNYAN.—On May 28th, at Aleppo, Syria, the wife of E. H. B. Altounyan, late Captain, R.A.M.C., of a daughter.
 CANDLER.—On June 3rd, at Shenley, Barnfield-road, Exeter, the wife of A. L. Candler, F.R.C.S. Eng., of twin sons.
 COOKE.—On June 3rd, at The Elms, Chobham, the wife of Dr. A. Ingram Cooke, of a son.
 DOBLE.—At Valence, Hampton Hill, Middlesex, on Wednesday, June 2nd, the wife of Temporary Captain F. Carminow Dobble, R.A.M.C., of a son.

MARRIAGES.

ROUTH—ROGERS.—On June 1st, at St. Paul's Church, Portman-square, W., Captain Laurence M. Routh, M.D., R.A.M.C., & Lyla R. Rogers, late A.A.N.S., second daughter of the late James Rogers, Esq., and of Mrs. J. Rogers, of Melbourne, Australia.
 RUNDLE—KERRULSH.—On June 3th, at Douglas, I.O.M., C. Rundle, O.B.E., M.D., of Fazakerley Hospital, Liverpool, to Florence M. Kerrulsh, M.B.C.S., L.R.C.P., of Douglas.
 SMITH—WHYBROW.—On June 3rd, at the Church of the Assumption, Warwick-street, Regent-street, London, W., Hugh Smith, M.D. Lond., F.R.C.S. Eng., of Cape Town, South Africa, to Frances Helena, widow of Captain H. Thomson Whybrow, of Rhodesia.
 WELCH—SIMPSON.—On May 31st, at Rosslyn Hill, Haverian Church, Hampstead, Captain Cyril Howard Welch, R.A.M.C. (T), & Catherine Harriet, second daughter of the late Alfred M. Simpson, Adelaide, South Australia.

DEATHS.

BARTER.—On June 1st, at Denbigh-road, Ealing, Joseph Francis Barter, L.R.C.S. Edin., Brigade Surgeon, I.M.S. (retired), aged 67.
 LIDDON—WYOMOUTH.—On June 3rd, at Hillside, Hanover-road, Weymouth, Frederick William Liddon Green, M.R.C.S. L.R.C.P., L.S.A., aged 51.
 MACLEAN.—On May 31st, at Freginal, Hampstead, George Maclean, M.A., M.B., Inspector-General, B.N. (retired).
 N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary

SOCIETIES

SOCIETIES.
ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street; W
Tuesday, June 15th.
FELLOWS: at 5 P.M.

GENERAL MEETING OF FELLOWS.
Ballot for Election to the Fellowship.
MEETINGS OF SECTIONS.
June 17th.

MEETINGS OF SENATE
Thursday, June 17th.
Henry MacCormac): at 5 p.m.

DERMATOLOGY (Hon. Secretary—Henry MacCormack.)
Cases (4-4.30 P.M.): (1) *Pityriasis Rubra Pilaris*; (2) Von Recklinghausen's Disease; (3) *Leprosy*; (4) *Syphilis*; (5) *Eczema*.
Dr. Barber: (1) *Pityriasis Rubra Pilaris*; (2) *Syphilis*; (3) *Eczema*.
Dr. Sibley: Multiple Pigmented Catarrhal Secondary Syphilis; (2) *Eczema*.
Dr. Parnet: Multiple Pigmented Catarrhal Secondary Syphilis; (2) *Eczema*.
Bilateral Morphea (two cases)
Dr. Little: (1) *Trichotillomania*; (2) *Epidermolysis Bullosa*.
Dr. Cline: (1) *Trichotillomania*; (2) *Epidermolysis Bullosa*.
Dr. Dychronius: Of Face.
Dr. MacCormack: Granuloma.
Thursday, June 18th and 19th.
Dermatology (Hon. Secretaries—E. A. ...)

Dr. G. Little: (17)
(18) Dyschromia of Face.
Dr. MacCormac: Granuloma.

Friday and Saturday, June 18th and 19th.
STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—E. A.
Cockayne, H. C. Cameron, C. P. Ladd).

MEETING AT MANCHESTER.

at the Medical Society

HARVEIAN SOCIETY OF LONDON, at the Medical Society
 Rooms, 11, Chandos-street, Cavendish-square, W.
 THURSDAY, June 17th.—8.30 P.M. Paper.—Dr. E. G. Little.
 Differential Diagnosis of Some Common Skin Eruptions.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.
FRIDAY, June 18th.—8.30 p.m. Papers:—Sir Horace Darwin
and Mr. W. G. Collins: A Universal Microtome.—Mr. L.
Hogben: The Problem of Synapsis.

WEDNESDAY, June 1, 1910.
and Mr. W. G. Collins: A Study
Hogben: The Problem of Synapsis.

LECTURES, ADDRESSES, DEMONSTRATIONS.
ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.
 TUESDAY, June 15th, and THURSDAY, — 5 P.M., Croonian
 Lectures:—Dr. A. F. HURD, "The Psychology of the Special
 Senses and their Hysterical Disorders. (Lectures II. and III.)"
UNIVERSITY MEDICAL COLLEGE (SURGICAL UNIT),
 11, WATLING STREET, St. James's Hospital, E.C. 1, W.

LONDON HOSPITAL MEDICAL COLLEGE, London Hospital, E.
in the Units' Lecture Theatre, London Hospital, E.
Special Course of Lectures open to both Students and Post-
Graduates.
Lectures on Bone Grafting in Civilian Surgery—
TUESDAY, 15th, AND THURSDAY, 17th, 4 P.M., Mr. R. Milne.
—COLLEGE, West London

WEST LONDON POST-GRADUATE COLLEGE, West London
 Wednesday, June 15th, 12.15 p.m. Dr. Burnford: Pathological
 Monday, June 14th, 5 p.m. Dr. G. Stewart: Syphilitic Affections
 of the Nervous System.
 Tuesday, June 15th, 10 a.m. Dr. Robinson: Gynaecological Operations
 of the Nervous System. Chronic General Peritonitis
 R.M. Mr. Steadman: Its Causes, Pathology, Consequence
 Medical Diseases

TUESDAY, 9 P.M., Mr. E. Sinclair: Its Cause and Prevention. (Pyorrhoea Aetiology). Dr. A. Saunders: Medical Diseases of Eye and Treatment. Lecture. Dr. A. Armour: Visit to Surgical Wards.

WEDNESDAY, 4.15 P.M., Dr. H. Harman: Eye Department. 5 P.M., Children. 7 P.M., Mr. B. Harman: Medical Surgery.

THURSDAY, 2 P.M., Mr. B. Harman: Diseases of the Throat, Nose, and Ear. Mr. Baldwin: Mr. Banks Davis: Demonstration of Surgical Cases.

FRIDAY, 2 P.M., Mr. B. Harman: Demonstration of Surgical Cases. 2.30 P.M., Mr. Addison: Surgical Anatomy of the Head and Neck. 5 P.M., Mr. B. Harman: Demonstration of Out-Patients.

SATURDAY—12 noon, Mr. Sinclair. Surgical Cases.
Abdomen. 2 P.M., Dr. Owen. Medical Out-patients.
Daily:—10 A.M., Ward Visits. 2 P.M., In-patient and Out-patient Clinics and Operations.

HOSPITAL FOR CONSUMPTION
CHEST, Brompton, S.W.
MONDAY, June 14th.—2 P.M., Dr. Melville: X Ray Department.
TUESDAY.—2 P.M., Sir J. Dundas Grant: Throat Department.
2.30 P.M., Demonstration.—Sir J. Dundas Grant: Throat Department.

2.30 P.M., Demonstration: Dr. Burrell. Artificial Pneumothorax Cases.
WEDNESDAY.—10.30 A.M., Dr. Punch. Demonstration: Cardiac Department.
Specimens. 2 P.M., Dr. Gosse. Cardiac Department.
2.30 P.M., Demonstration:—Dr. Melville: X Ray Selections.
Cases. 10.30 A.M., Dr. Burrell. Artificial Pneumothorax Cases.
10.30 A.M., Dr. Bosanquet: Mediastinal Cases.

THURSDAY.—10.30 A.M., Dr. Burfield. 2.30 P.M., Demonstration.—Dr. Bosanquet.
FRIDAY.—2 P.M., Dr. Melville. X Ray Department. 2.30 P.M., Demonstration.—Dr. Harrell. Vital Capacity.
SATURDAY.—10.30 A.M., Dr. Batty Shaw. Special Demonstration.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C.1.
MEDICAL SCHOOL.
 SATURDAY.—1 P.M., Dr. Batty Shaw, the Out-patient Department
 2-3 P.M., Out-patient Clinic: Dr. Coates.

MONDAY, June 14th. -2.30 P.M., Ont-patients
3.30 P.M., Dr. Kinnler Wilson Ties.
TUESDAY, June 15th. -2.30 P.M., Ont-patients Clinic:
Granger Stewart. 3.30 P.M., Dr. Rislen Russell: Demo
tion of Ward Cases.
WEDNESDAY, June 16th. -2 P.M., Mr. Armour: Surgical
Cases. 3 P.M., Dr. Collier: Loc

WEDNESDAY, June 16th.-2 P.M., Mr. A. J. Collier; Dr. Collier; Out-patient Clinic.
Signs of Intracranial Tumours
THURSDAY, June 17th.-2-3.30 P.M., Dr. Farquhar Buzzard; Dr. Farquhar; Out-patient Clinic.

FRIDAY, June 18th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon
Holmes, 3.30 P.M., Dr. Tooth. Myopathy.
Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

DIARY.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART,
Westmoreland-street, W.
MONDAY, June 14th.—5.30 P.M., Post-Graduate Lecture.—Dr.
Moon: Aneurysm.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY
HOSPITAL).—Post-Graduate Lectures on Syphilis is being given
by the staff of King's College Hospital.

by various members of the staff of King's College
during the present year.

NORTH-EAST LONDON POST-GRADUATE COLLEGE
of Wales's General Hospital, Tottenham, N.
MONDAY, June 14th.—2.30 P.M., Mr. J. B. Banister: Gynecological
—9.45 A.M., Lieut.-Col. R. H. Elliot: Selected Eye Cases
FRIDAY, June 18th.—2.15 P.M., Selected Cases.—Dr. C. E. Sundell:
Clinical Lectures on the Pancreas.

(2) MONDAY, 9.45 A.M., Lecture: "The Pathology of the Pancreas."
TUESDAY, 2.15 P.M., Section: "Surgical Diseases of the Pancreas."
and Operations. 3.15 P.M., Clinical: "Surgical Diseases of the Pancreas."
Cardiac Disease in Children. 4.30 P.M., Lecture: "Lieut.-Col.
Mr. H. W. Carson: Surgical Diseases of the Pancreas."
Pathology and Treatment. 4.30 P.M., Lecture: "Lieut.-Col.
P. H. Elliot: Auto-intoxication as a Factor in Eye Disease."
P. H. Elliot, M.D., Dr. W. J. Oliver: Dermatological.
P. H. Elliot, M.D., Dr. W. J. Oliver: Ophthalmological. Dr. J.

(2) R. H. Elliot: Auto-Immune Diseases.
WEDNESDAY.—2.30 P.M., Dr. W. J. O'Connell: Ophthalmology.
THURSDAY.—2.30 P.M., Mr. N. Fleming: Diseases of Children.
Metcalfe: Radiology.
FRIDAY.—2.30 P.M., Dr. C. E. Sundell: Selected Surgical Cases.
—3 P.M., Mr. H. W. Carson: Selected Surgical Clinics, &c.
—7 P.M., Lectures, Medical and Surgical Clinics, &c.
JANUARY 77, Welbeck-street.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street,
Cavendish-square, W.
Daily:—2.30 p.m., Operations, Medical and
Friday:—3 p.m., Mr. H. H. Pritchard: Practice
Saturday:—10.30 a.m., Dr. E. Pritchard: Practice
Graduate Course on Infant and Child Welfare:
15th:—10.30 a.m., Dr. E. Pritchard: Practice
Management and Feeding of Infant
Artificial Feeding

Post-Graduate Course on
TUESDAY, June 15th.—10.30 A.M., Demonstrations on the Management and Feeding of Infants.
and Young Children—Lecture V., The Artificial Feeding of Infants.
3 P.M., Lecture VI., The Modification of Milk.

THURSDAY.—3 P.M., Lecture.
UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University,
and others interested in the subject.
Course of Eight Lectures on the Bio-Chemistry of Sterols will be
delivered in the Physiological Laboratory of the University.
J. A. Gardner.

W. Darwin
-Mr. L.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC
WEDNESDAY, June 15th.—4 P.M., Prof. A. J. Smith
Nervous Disease. (III.)

MANCHESTER
TUESDAY, June 15th.—
Chronic Empyema, its Prevention and
MANCHESTER FRENCH HOSPITAL POST-GRADUATE LECTURES, 24, Acomb-street (behind Whitworth Park).
THURSDAY, June 17th.—4.30 P.M., Dr. N. C. Haring: Diseases of

Communications, Letters, &c., to the Editor have been received from—

A.—Mr. A. S. Anderson, Northampton; Dr. J. M. Ahern,
Rochester; Major H. W. Acton,
I.L.S., Lond.; Dr. E. D. Adrian,
Cambridge.
B.—Prof. W. Blair Bell, Liverpool;
Francisco Santander of

B.—Prof.
pool; Bramcote Sand-
Medical Superintendent of;
Dr. L. S. T. Burrell, Lond.;
Board of Education, Lond.;
British Clerk to the Guardians,
Dr. J. Blomfield, Lond.; Mr. H.
Hard, Reading, Capt. W. Bur-
ridge, R.A.M.C., Cosham; Dr.
Lond.; Dr.

Lond.; Sir J. O'Connor,
Aires.
P.—People's League of Health,
Lond.; Dr. R. H. Paramore,
Rugby.
Q.—Queen Charlotte's Lying-in
Hospital, Lond. Sec. of
R.—Rockefeller Foundation, New
York City.
S.—St. George's Hospital Society

R. Rockingham, York; Capt. W. J. Rutherford, Royal Society; Edinburgh; Royal Naval Medical School; Dr. W. C. Rivers, Worcester; Club; Dale; Royal College of Veterinary Surgeons; Sec. of; Dr. B. A. Richmond, Rubber Growers' Association.

Crookshank.
 Curls, Lond.
 D.—Dr. W. Dester, Turf.
 E.—Epson College War Memorial
 E.—Wm. Coll. Sec. of; Dr. G. S.
 Fund, Lond.; Dr. J. H.
 Earl, Plymouth; Dr. J. H.
 Earp, Philadelphia.
 F.—Fellowship of Medicine Post-
 F.—Leys Medical Association, Lond.

trax.	F.—Fellowes, Medical Assoc.	Dr. R. H. Stanger
	Graduates, Medical Assoc.	Society of Tropical Medicine
	London; Dr. J. Freeman, Lond.	and Hygiene, London; Soc.
r.n.,	Major: E. G. French, Lond.	for Prevention of Venereal
	G.—Sir, J. D. Grant, Lond.	cases, Lond. Hon. Sec.
on in	H.—Prof. A. J. Hall, Sheffield.	Prof. C. F. M. Saint.
	G.—Sir, A. J. Hall, Lond.; Hos-	Town.
	pital for Sick Children, Lond.	T.—Dr. F. S. Tinker, Ban-
EPI-	dr. J. Haddon, Lond. Mra. T.	

EPI.
Bridgwater.

Collier.

Mrs. J. Haddon, Lond.; Mrs.
W. Heinemann, Lond.; Mr. J. T.
M. Hogarth, Pietermaritzburg;
Henderson, Pietermaritzburg;
Mr. P. Haupt, Bern.
L.-Ivory Cross, Lond.
K.—Dr. W. M. Karshner, Wash-
ington; King's College Hosp-
ital; King's School, Sec. of:

T.—Dr. F. E. Tol, Lond.; Mr.
T. Hornby, Exmouth.
U.—Université de Gand, Faculté
de Médecine, Sec. of.
W.—Miss W. P. Walsh,
St. L. A. Weatherly, B.
irmingham; West London Hos-
pital Graduate College, London.

L Treatment Localised
ington :
pital Medical School, Sec
Dr. J. Kerr, Lond.
L.—Mr. J. N. Telford, Sutton ;
London Dermatological Society.
M.—Mr. M. Munro, Arismore.
Mr. K. MacLaren, Carlisle; Dr.
Mr. C. Myers, Porlock; Ministry
Health, Lond.; Ministry

Appointments.

DOWNES, H., M.B., C.M. Edin., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer of Health for the Chard (Somerset) Rural District Council.
FARMICLOUGH, H., M.B., B.S. Dunelm., Medical Officer in charge of the X Ray and Electrical Department, Royal Infirmary, Sunderland.
MACKENZIE, M., L.R.C.P. & S. Edin., Certifying Surgeon under the Factory and Workshop Acts for Stornoway.
WILSH, SYDNEY L., M.D. Lond., M.R.C.P., Junior Assistant Physician at the Elizabeth Garrett Anderson Hospital, Euston-road, N.W.
WHITLEY, W. F. J., M.D. Edin., D.P.H. Oxf., Medical Officer of Health for the County of Northumberland.

Vacancies.

For further information refer to the advertisement columns.
Aylesbury, Royal Buckinghamshire Hospital.—H.S. £200.
Aylesford, Preston Hall.—M.O. £800.
Barnet, Wellhouse Hospital.—Res. Asst. Med. Supt. £250.
Barnsley County Borough.—M.O.H. £850.
Barnrow-in-Furness County Borough.—Asst. M.O.H. and Clin. Tuberc. Officer. £500.
Battersea General Hospital (Incorporated), Battersea Park, S.W.—Res. M.O. £200.
Birmingham General Dispensary.—Res. M.O. £400.
Birmingham, Queen's Hospital.—Three H.P.'s, three H.S.'s, Obstet. and Ophthalm. H.S., and Cas. H.S. £90 each.
Bradford City.—Asst. Bacteriologist. £600.
Brentwood Mental Hospital, Brentwood, Essex.—Locum Tenens Asst. M.O. £7 7s. per week.
Brighton, Hove and Preston Dispensary.—Res. M.O. £200.
Brighton, New Sussex Hospital for Women and Children, 4-6, Ditchling-road.—Asst. S. and Asst. Anesth.
Bristol General Hospital.—Cas. H.S. £175.
Bristol Royal Infirmary.—H.S.'s, H.P.'s, Obstet. H.S., Cas. O., Ophthalm. H.S., and Dent. H.S.
Bristol, Southmead Infirmary.—Two Asst. Res. M.O.'s. £300.
Burnley, Victoria Hospital.—H.S. £250.
Bury County Borough.—Venereal Diseases Officer. 3 guineas a session.
Bury St. Edmunds, West Suffolk General Hospital.—H.S. £200.
Cambridge, Addenbrooke's Hospital.—H.P. and H.S. £130 each.
Cameron Hospital, West Hartlepool.—H.S. £300.
Cardiff City Mental Hospital, Whitechurch, near Cardiff.—Second Asst. M.O. £350.
City of London Hospital for Diseases of the Chest, Victoria Park, E.—Asst. M.O. £150.
City of London Maternity Hospital, City-road, E.C.—Res. M.O. £100.
Coventry Education Committee.—School Dentists. £400.
Croydon County Borough.—Asst. M.O.H. and Asst. Sch. M.O. £500.
Derby, Derbyshire Hospital for Sick Children.—Female Res. M.O. £150.
Doncaster Royal Infirmary and Dispensary.—Asst. H.S. £225.
Dumfries and Galloway Royal Infirmary.—Res. H.S. and Asst. H.S. £150 and £75.
East Suffolk County Education Committee.—Dental Surgeon. £500.
East School M.O.'s. £500.
Enham Village Centre for Disabled Ex-Service Men, near Andover, Hants.—Asst. Med. Director. £500.
Erith Education Committee.—Medical Man.
Essex County Council and Tending Rural District Council.—Asst. County M.O.H., &c. £600.
Fulham Infirmary, St. Dunstan's-road, Hammersmith, W.—Jun. Asst. M.O. £300.
Gloucestershire Royal Infirmary and Eye Institution.—H.P. £175.
Gravesend Hospital.—H.S. £200.
Hackney Metropolitan Borough.—M.O.H. £1000.
Halifax Royal Infirmary.—Senior, Second, and Third H.S.'s. £350, £500, and £275 respectively.
Hamstead General and North-West London Hospital, Haverstock Hill, N.W.—H.P., Cas. S.O., Cas. M.O. £150 each.
Hospital for Sick Children, Great Ormond-street, W.C.—P. Also Cas. M.O. £200. Also Med. Reg. and Path. £200.
Huddersfield Royal Infirmary. Sen. H.S. £250.
Hull Royal Infirmary.—Sen. H.S. £200. Asst. H.S. £150.
Huntingdonshire County Council.—Female Asst. County M.O. and Asst. Sch. M.O. £500.
Kensington Board of Guardians Institutions, Marlborough-road.—Fourth Asst. Res. M.O. £250.
Leamington Spa, Warneford, Leamington, and South Warwickshire General Hospital.—Hon. S. Also Res. H.P. £200.
Leeds General Dispensary.—Res. M.O. £200.
Leicester, City Mental Hospital, Humberstone.—Asst. M.O. £600.
Also Locum Tenens Asst. M.O. 10 guineas per week.
Leicestershire County Council.—Female Asst. Sch. M.O. and Asst. Infant Welfare M.O. £500.
Londonderry County Council.—Female Asst. M.O. £550. Also Asst. Tuberc. O. and Asst. Sch. M.O. £550.
London County Council Hospital Service.—Sixth and Seventh Asst. M.O.'s. £500.
London Lock Hospital, 21, Duncannon-st., Soho, W.—Clin. Asst. £200.
London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £200.
Maddison, Kent County Mental Hospital.—Jun. Asst. M.O. £300.
Manchester, Ancoats Hospital.—H.P. £150. Also Two Jun. H.S.'s. £100.
Manchester, Manby Fever Hospital.—Sec. Med. Asst. and Third Med. Asst. £50 each.
Manchester Royal Free Hospital.—H.S. £120.
Manchester Royal Infirmary.—H.S.
Manchester Hospital Medical School, W.—Senior Demonstrator in Physiology. £250.

Middleton-in-Wharfedale Sanatorium, near Ilkley.—Asst. M.O. £500.
Miller General Hospital for South-East London, Greenwich, S.E.—Res. Cas. O. £150. Also H.S. £100.
Ministry of Pensions, Medical Services Department.—Jun. Pa. M.O.'s. £300.
Newcastle-upon-Tyne, Hospital for Sick Children.—Sen. and Jun. Res. M.O.'s. £250 and £200 respectively.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Two Hon. Secy Registrars.
Newport, Mon., Royal Gwent Hospital.—Two Res. M.O.'s. £200 and £180 respectively.
Northampton General Hospital.—H.S. and H.P. £200 each.
Nottingham City Asylum.—Second Asst. M.O. £400.
Nottingham General Hospital.—Cas. H.S. £300. H.P. £200. Holb. Locum Tenens. £7 7s. a wk.
Nottingham, Notts County Council.—Female Asst. Child Welfare M.O. and Asst. Sch. M.O. £500.
Portsmouth Education Committee.—Asst. School M.O. £500.
Portsmouth Royal Hospital.—H.S. £150.
Pouck, Worcester County and City Mental Hospital.—Jun. Asst. M.O. £300.
Prince of Wales's General Hospital, Tottenham, N.—Jun. R.P. £120. Also Clin. Assts.
Putney Hospital, Lower Common, Putney, S.W.—Hon. Radiologist.
Rochdale Infirmary and Dispensary.—Sen. H.S. £250.
Roll of Honour Hospital for Children, 638, Harrow-road, W.—Female Anesth. £90.
Rotherham Hospital.—Jun. H.S. £150.
Royal London Ophthalmic Hospital, City-road, E.C.—Sen. H.S. £150. Also Asst. S.
Royal Waterloo Hospital for Children and Women.—Jun. Res. M.O. £100.
St. Margaret's Hospital, Leighton-road, Kentish Town, N.W.—Medical Specialist in Diseases of Children. 200 guineas.
St. Mary's Hospital, Paddington.—Secretary. £800.
Salop County Council.—Two Asst. M.O.'s. £517 10s.
Sheffield Royal Hospital.—Asst. Cas. O. £150.
Sheffield Royal Infirmary.—H.P. and H.S. £150 each.
Shoreditch Hospital, 201, Hoxton-street.—Third Res. Asst. M.O. £150.
Shoreham, Lancing College.—Res. M.O. £500.
Shrewsbury, Royal Salop Infirmary.—H.P. £200.
Singapore, Straits Settlements, Health Department.—Asst. Health Officer. £750.
South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.P. £100.
Stafford, Staffordshire General Infirmary.—H.S. £250.
Stamington, Newcastle-on-Tyne, Mental Hospital.—Locum Asst. M.O. 7 6s.
Stockport Infirmary.—Jun. Res. M.O. £200.
Storches Hall Asylum, Kirkburton, near Huddersfield.—Asst. M.O. £400.
University of London, King's College for Women, Household and Social Science Department.—Chair of Physiology. £300.
West Bromwich and District Hospital.—Res. H.S. £200.
West London Hospital, Hammersmith, W.—H.P. £50. Also Clin. Assts.
Westminster Hospital, Broad Sanctuary, S.W.—H.S.
Whitchaven and West Cumberland Infirmary.—Res. H.S. £225.
Wigan Infirmary.—Hon. S. P., Asst. S., and Asst. P.
Wilts County Council.—Asst. County M.O.H. and Asst. Sch. Med. Insp. £600.
The Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Liverpool.

Births, Marriages, and Deaths.

BIRTHS.

ALTOUNYAN.—On May 28th, at Aleppo, Syria, the wife of E. H. B. Altounyan, late Captain, R.A.M.C., of a daughter.
CANDLIN.—On June 3rd, at Shenley, Barnfield-road, Exeter, the wife of A. L. Candler, F.R.C.S. Eng., of twin sons.
COOKE.—On June 3rd, at the Elms, Chobham, the wife of Dr. A. Ingram Cooke, of a son.
DOBLE.—At Valmead, Hampton Hill, Middlesex, on Wednesday, June 2nd, the wife of Temporary Captain F. Carminow Dobble, R.A.M.C., of a son.

MARRIAGES.

ROUTH-ROGERS.—On June 1st, at St. Paul's Church, Portman-square, W., Captain Laurence M. Routh, M.D., R.A.M.C., to Lyla R. Rogers, late A.A.N.S., second daughter of the late James Rogers, Esq., and of Mrs. J. Rogers, of Melbourne, Australia.
RUNDLE-KERRIUS.—On June 9th, at Douglas, I.O.M., C. Rundle, O.B.E., M.D., of Fazakerley Hospital, Liverpool, to Florence M. Kerruish, M.R.C.S., L.R.C.P., of Douglas.
SMITH-WHYBROW.—On June 3rd, at the Church of the Assumption, Warwick-street, Regent-street, London, W., Hugh Smith, M.D., F.R.C.S. Eng., of Cape Town, South Africa, to Frances Helena, widow of Captain H. Thomson Whybrow, of Rhodesia.
WELCH-SIMPSON.—On May 31st, at Roselyn Hill Unitarian Church, Hampstead, Captain Cyril Howard Welch, R.A.M.C.(T), to Catherine Harriet, second daughter of the late Alfred M. Simpson, Adelaide, South Australia.

DEATHS.

BARTER.—On June 1st, at Denbigh-road, Ealing, Joseph Francis Barter, L.R.C.S. Edin., Brigade Surgeon, I.M.S. (retired), aged 87.
LIDDON GREEN.—On June 3rd, at Hillside, Hanover-road, Weymouth, Frederick William Liddon Green, M.R.C.S., L.R.C.P., I.S.A., aged 51.
MACLEAN.—On May 31st, at Frognal, Hampstead, George Maclean, M.A., M.B., Inspector-General, R.N. (retired).
N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, June 15th.

GENERAL MEETING OF FELLOWS: at 5 P.M.

Ballot for Election to the Fellowship.

MEETINGS OF SECTIONS.

Thursday, June 17th.

DERMATOLOGY (Hon. Secretary—Henry MacCormac): at 5 P.M.

Cases (at 4.30 P.M.):

- Dr. Barber: (1) Pityriasis Rubra Pilaris; (2) Von Recklinghausen's Disease with Acromioclavicular.
- Dr. Sibley: Multiple Pigmented Sarcoma.
- Dr. Pernet: (1) Extensive Cicatricial Secondary Syphilis; (2) Bilateral Morphea (two cases).
- Dr. G. Little: (1) Trichotillomania; (2) Epidermolysis Bullosa; (3) Dyschromia of Face.
- Dr. MacCormac: Granuloma.

Friday and Saturday, June 18th and 19th.

STUDY OF RHEUM IN CHILDREN (Hon. Secretaries—E. A. Cochrane, R. C. Cameron, C. P. Lancelotti).

PROVINCIAL MEETING AT MANCHESTER.

HARVEIAN SOCIETY OF LONDON, at the Medical Society's Rooms, 11, Chandos-street, Cavendish-square, W.

Thursday, June 17th.—8.30 P.M. Paper: Dr. E. G. Little:

Differential Diagnosis of Some Common Skin Eruptions.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

Friday, June 18th.—8.30 P.M. Annual General Meeting. Paper:—

Dr. F. H. Stewart: Recent Work on Round-worm Infection.

ROYAL MICROSCOPICAL SOCIETY, 40, Hanover-square, W.

Wednesday, June 16th.—7.30 P.M. Papers:—Sir Horace Darwin

and Mr. W. G. Collins: A Universal Microtome.—Mr. L. Hogben: The Problem of Synapsis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

Thursday, June 15th, and Thursday, June 17th.—5 P.M. Croonian

Lectures.—Dr. A. F. Hurst: The Psychology of the Special

Senses and their Hysterical Disorders. (Lectures II. and III.)

LONDON HOSPITAL MEDICAL COLLEGE (SURGICAL UNIT),

in the Units' Lecture Theatre, London Hospital, E.

Special Course of Lectures open to both Students and Post-

Graduates.

Wednesday, June 16th, and Thursday, June 17th.—5 P.M. Mr. R. Milne.

WEST LONDON POST-GRADUATE COLLEGE, West London

Hospital, Hammersmith, W.

Monday, June 14th.—12.15 P.M. Dr. Burnford: Pathological

Demonstration. 5 P.M. Dr. G. Stewart: Syphilitic Affections

of the Nervous System.

Thursday, June 15th.—10 A.M. Dr. Robinson: Gynaecological Operations.

5 P.M. Mr. Steadman: Chronic General Periodontitis

(Pyorrhoea Alveolaris). Its Causes, Pathology, Consequences,

and Treatment. (Lecture I.)

Wednesday.—10 A.M. Dr. A. Saunders: Medical Diseases of

Children. 4.15 P.M. Dr. R. Armour: Visit to Surgical Wards.

Thursday.—2 P.M. Mr. B. Harman: Eye Department. 5 P.M.

Mr. Baldwin: Practical Surgery.

Friday.—2 P.M. Mr. Banks Davis: Diseases of the Throat, Nose,

and Ear. 2.30 P.M. Mr. Addison: Demonstration of Surgical

Cases.

Saturday.—12 noon, Mr. Sinclair: Surgical Anatomy of the

Abdomen. 2 P.M. Dr. Owen: Medical Out-patients.

Daily.—10 A.M., Ward Visits. 2 P.M., In-patient and Out-patient

Clinics and Operations.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE

CHEST, Brompton, S.W.

Monday, June 14th.—2 P.M., Dr. Melville: X Ray Department.

Tuesday.—2 P.M., Sir J. Dundas Grant: Throat Department.

2.30 P.M., Demonstration.—Sir J. Dundas Grant: Throat

Cases.

Wednesday.—10.30 A.M., Dr. Funch: Demonstration of Museum

Specimens. 2 P.M., Dr. Gosse: Cardiographic Department.

2.30 P.M., Demonstration.—Dr. Melville: X Ray Selected

Cases.

Thursday.—10.30 A.M., Dr. Burrell: Artificial Pneumothorax.

2.30 P.M., Demonstration.—Dr. Bosanquet: Mediastinal

Diseases.

Friday.—2 P.M., Dr. Melville: X Ray Department. 2.30 P.M.,

Demonstration.—Dr. Burrell: Vial Capacity.

Saturday.—1 P.M., Dr. E. R. Shaw: Special Demonstration in

the Out-patient Department.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPI-

LEPTIC, Queen-square, W.C.1.

MEDICAL SCHOOL.

Monday, June 14th.—2.30 P.M. Out-patient Clinic: Dr. Collier.

3.30 P.M., Dr. Kinnier Wilson: Tics.

Tuesday, June 15th.—2.30 P.M. Out-patient Clinic: Dr.

Granger Stewart. 3.30 P.M., Dr. Rislen Russell: Demonstra-

tion of Ward Cases.

Wednesday, June 16th.—2 P.M., Mr. Armour: Surgical Treat-

ment of Spinal Curves. 3.15 P.M., Dr. Collier: Localised

Signs of Intracranial Tumours.

Thursday, June 17th.—2.30 P.M. Out-patient Clinic: Dr.

Farquhar Buzzard. 3.30 P.M., Dr. Farquhar Buzzard:

Chorea.

Friday, June 18th.—2.30 P.M. Out-patient Clinic: Dr. Gordon

Holmes. 3.30 P.M., Dr. Tooth: Monoplegia.

Fee for Post-graduate Courses 47s. C. M. HINDS HOWELL, Dean.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART,

Westmoreland-street, W.

Monday, June 14th.—5.30 P.M., Post-Graduate Lecture:—Dr.

Moon: Aneurysm.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY

OF LONDON).

A Course of Post-Graduate Lectures on Syphilis is being given

by various members of the staff of King's College Hospital

during the present year.

Friday, June 18th.—9.15 P.M., Dr. H. Playfair: Syphilis in Ante-

natal and Obstetric Practice.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince

of Wales's General Hospital, Tottenham, N.

Monday, June 14th.—2.30 P.M., Mr. B. Panger: Gynaecological

Operations.—9.45 P.M., Lieut. Col. R. H. Elliot: Selected Eye Cases

and Operations. 2.15 P.M. Selected Cases.—Dr. C. E. Sandell:

Cardiac Disease in Children. 3.15 P.M., Clinical Lecture:—

Mr. H. W. Carson: Surgical Diseases of the Pancreas—

Pathology and Treatment. 4.30 P.M., Lecture.—Lieut. Col.

R. H. Elliot: Auto-intoxication as a Factor in Eye Disease.

Wednesday.—2.30 P.M., Dr. W. J. Oliver: Dermatology.

Thursday.—2.30 P.M., Mr. N. Fleming: Ophthalmological. Dr. J.

Metcalfe: Radiology.

Friday.—2.30 P.M., Dr. C. E. Sandell: Diseases of Children.

Saturday.—3 P.M., Mr. H. W. Carson: Selected Surgical Cases.

Daily.—2.30 P.M., Operations, Medical and Surgical Clinics, &c.

ST. MARLBOROUGH GENERAL DISPENSARY, 77, Welbeck-street,

Cavendish-square, W.

Post-Graduate Course on Infant and Child Welfare.

Tuesday, June 15th.—10.30 A.M., Dr. E. Pritchard: Practical

Demonstrations on the Management and Feeding of Infants

and Young Children—Lecture V. The Artificial Feeding

of Infants.

Thursday.—3 P.M., Lecture VI. The Modification of Milk.

UNIVERSITY OF LONDON.

Advanced Lectures in Physiology to Students of the University

and others interested in the subject.

A Course of Eight Lectures on the Biochemistry of Sterols will be

given by the Physiological Laboratory of the University,

South Kensington, S.W.

Thursday, June 15th.—5 P.M., Lecture V. Mr. J. A. Gardner.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE.

POST-GRADUATE LECTURES, at the Sheffield Royal Hospital.

Wednesday, June 16th.—4 P.M., Prof. A. Hall: Diagnosis of

Nervous Diseases. (III.)

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, June 15th.—4.30 P.M., Lecture V. Mr. W. Smith:

Chronic Empyema, its Prevention and Treatment.

MANCHESTER FRENCH HOSPITAL POST-GRADUATE LEC-

TURE, 24, Lomb-street (behind Whitworth Park).

Thursday, June 17th.—4.30 P.M., Dr. N. C. Haring: Diseases of

the Pleura.

Communications, Letters, &c., to the Editor have

been received from—

A.—Mr. A. S. Anderson, North-

ampton; Dr. J. M. Ahern,

Rochester; Major H. W. Acton,

M.S., London; Dr. E. D. Adrian,

Cambridge.

B.—Prof. W. Blair Bell, Liver-

pool; Bramcote Sanatorium,

Medical Superintendent of;

P. L. S. Burrows, London.

Board of Education, London;

Bristol, Clerk to the Guardians;

Dr. J. Blomfield, London; Mr. H.

Beard, Reading; Capt. W. Bur-

ridge, R.A.M.C. Cosham; Sir J.

Blund-Sutton, London; Dr. A.

Burrows, Manchester; Dr. E.

J. Burton, London.

C.—Dr. W. G. Carr, London; Sir J.

Crichton-Browne, London; Dr.

F. F. Calger, London; Dr. F. G.

Crookshank, London; Mr. H.

Curtis, London.

D.—Dr. J. D. Dester, Turf.

E.—Epsom College War Memorial

Fund, Hon. Sec. of: Dr. G. S.

Earl, Plymouth; Dr. J. R.

Farr, Philadelphia.

F. Fellows of Medicine Post-

Graduate Medical Association,

London; Dr. J. Freeman, London;

Major E. G. French, London.

G.—Sir J. D. Grant, London.

H.—Dr. J. J. Hall, Sheffield;

Dr. C. W. Hunt, London; Hos-

pital for Sick Children, London;

Dr. J. Haddon, Duxbury; Mr.

W. Hearnshaw, London; Mrs.

M. Hogarth, London; Mr. J. T.

Henderson, Pietermaritzburg;

Mr. P. Haupt, Bern.

I.—Ivory Coast, London.

K.—Dr. W. M. Karshner, Wash-

ington; King's College Hos-

pital Medical School, Sec. of:

Dr. J. Kerr, London.

L.—Mr. N. Letch, Sutton;

London Dermatological Society.

M.—Mr. J. M. Munro, Avignon;

Dr. M. MacLaren, Carlisle; Dr.

C. S. Myers, London; Ministry

of Health, London; Ministry

of Munitions of War, Medical

Board Office, Sec. of: Dr. G.

Meach, Fitchy; Dr. J. Moore,

London; Mr. R. Morris, New-

castle-on-Tyne; Ministry of

Pensions, London.

O.—Prof. Dr. Ottolenghi, Siena;

Overseas Nursing Association,

London; Sir J. O'Connor, Buenos

Aires.

P.—People's League of Health,

London; Dr. R. H. Paramore,

Rushby.

Q.—Queen Charlotte's Lying-in

Hospital, London, Sec. of.

R.—Rockefeller Foundation, New

York; Capt. W. J. Butlerford,

Edinburgh; Royal Society,

London; Royal Naval Medical

Club; Dr. W. C. Rivers, Wors-

borough Dale; Royal College of

Veterinary Surgeons, London,

Sec. of: Dr. B. A. Richmond,

London; Rubber Growers' As-

sociation, London; Royal Insti-

tution, London; Mr. C. Rowntree,

London; Royal Society of Arts,

London.

S.—Dr. T. E. Sandall, Oxford;

Prof. W. Stirling, Manchester;

Dr. B. H. Slater, Bradford;

Society of Tropical Medicine

and Hygiene, London; Society

for Prevention of Venereal Dis-

eases, London, Hon. Sec. of:

Prof. C. F. M. Satat, Cape

Town.

T.—Dr. F. S. Tinker, Banstead;

Dr. H. F. Todd, London; Mr. G. L.

London, London.

U.—Université de Gand, Faculté

de Médecine, Sec. of.

W.—Mr. W. P. Walsh, London;

Dr. L. A. Weatherly, Bourn-

mouth; West London Post-

Graduate College; Prof. J.

Wardell, Shanghai; Messrs.

Watson and Sons, London; West

London Medical and Chirurgical

Society; Women's Holiday

Fund, London, Sec. of.

Notes, Short Comments, and Answers to Correspondents.

NOTES ON

PSYCHOANALYSIS AND PSYCHOTHERAPY.

By SIR JAMES CRICHTON-BROWNE, M.D., LL.D., F.R.S.,
LORD CHANCELLOR'S VISITOR IN LUNACY.

PART II.*

SUGGESTION is a perfectly legitimate medical weapon, the assistance of which is invoked by every medical man in every prescription, but care must be taken that its nature is clearly understood. This is especially true of hypnosis. In psychotherapy its utility is unquestionable, but its influence is often short-lived, for cases thus treated are admittedly very liable to relapse. When unduly pushed or misapplied it may induce very disastrous consequences. In the war psychoneuroses suggestion has been of conspicuous use, more especially in those cases in which autosuggestion has been at the root of the symptoms. A confident prediction by a sympathetic physician that there is nothing radically wrong and that in a certain definite time, under a certain impressive course of treatment, complete recovery will take place, has often had the happiest effect. *Similia similibus curantur*. What suggestion gave suggestion has taken away. But the results of suggestion are insecure, and backslidings are frequent.

The Doubtful Value of Argument.

Of the value of argument in psychoneurotic cases I am less convinced. The rule used to be that once for all the patient should be encouraged to state fully his mental troubles, and once for all their irrationality should be explained to him, and his objections met; but to recur to the subject again and again and chop logic about it was regarded as bad policy. Lightly held erroneous impressions may be argumentatively jettisoned, but a delusion should not be given belligerent rights. In the presence of the most absolute proof of its absurdity it will stick fast, and, for my own part, I have never known a delusion worn away by controversial methods.

The Anti-repression Method.

To one psychotherapeutic expedient for which great achievements are claimed I should be inclined to demur; this is the anti-repression method, or the upheaval or facing-it-out schema, as it might be called. Repression, which is alleged to have taken so considerable a part in the production and maintenance of the war psychoneuroses, especially of the anxiety neuroses, I confess I do not clearly understand. It is described as "the active or voluntary process by which it is attempted to remove some part of the mental content out of the field of attention, with the aim of making it inaccessible to memory." It is therefore the will to forget, but the will has no such power. It cannot seize a painful or disagreeable thought or feeling by the scruff of the neck and thrust it down into unconsciousness. There is no method by which a person can voluntarily remove from consciousness some part of his mental contents. The will is not a policeman with power to order objectionable memories to move on or to shut them up in the cells below. It is undoubtedly true that by a voluntary endeavour we can modify or divert the stream of images and recollections arising in the mind. When surveying the scene before us we can, under an adequate motive, observe one point and neglect everything else. When engaged in any pursuit it is possible for us to keep out irrelevant thoughts, though arising in the current of association, but this is done, not by any forcible extrusion process but by concentrating attention on the thought or image we desire to observe or study, and leaving all outside thoughts and images to that natural fading towards the vanishing point which takes place when the light of attention is withdrawn. As regards emotional states the one thing practicable is to check or promote that part of their diffusive manifestation that is made up of movements of the voluntary muscles. The suppression of the active movements has a tendency to suppress the nervous currents that incite them. "It is a law of our constitution that the inward wave tends to the away by being refused the outward vent."

There are vehement states of sudden emotional excitement in which it is perhaps better to give free course for a time to their outward display. Anger, grief, or joy may come upon us in such overwhelming force that the current cannot be resisted; repression is impossible because attention is wholly absorbed, and the inward pressure is relieved through the safety valve of vehement demonstration, but on all emotion short of this acute it is habitual and systematic restraint that should be aimed at.

"No one," said Maudsley, "can resolve successfully by a mere effort of will to think in a certain way or to feel in a certain way, or even to act always in accordance with a certain rule, but he can, by acting on the circumstances which will in turn act on him, imperceptibly modify his character; he can learn to withdraw his mind from a certain train of thought, the activity of which will thereupon subside, and can direct it to a different train of thought which will thereupon become more active."

Its Contradiction of Accepted Principles.

The fixing of attention upon some indifferent or different thought while poignant memories occupy the mind is always a difficult, sometimes an impossible, task, but it is the only way of obtaining relief, and it is the way in which our war-worn men have sought refuge from their reminiscences troubles. Attention in them, instead of moving freely from point to point with the objects presented to it, has become riveted upon some particular idea or recollection, and has become rigid. The men have tried not to think of their life in France or Belgium or Gallipoli, to occupy their minds with other interests, and to avoid newspapers and war books.

But in doing this it appears our war patients have been all wrong. They have been practising repression, which is anathema, forcing down their war memories into mysterious depths from which they emerge now and then, in curious disguises—anxiety, depression, tremors, jumpiness, dreams, dizziness, headaches, dyspepsia, and all sorts of anomalous symptoms. During the day repression can, by an effort, be maintained, but it is relaxed when night comes and the irrepressible memories bounce up in consciousness and cause insomnia or ghastly dreams. The proper course, we are assured, for men thus afflicted is to stop repression and keep their miseries ever before them. They must be persuaded to dwell on them, to describe them to their companions, to face them, and to get accustomed to them.

Now all this seems to me to be at variance with pre-war experience, at any rate, and must I add, with common-sense. Rubbing a raw surface has not hitherto been found conducive to healing. Surely it is the experience of mankind at large that to recall our misfortunes, sorrows, and follies is the one sure way to strengthen and prolong their hold on us, and that the sooner they are ousted by neutral or pleasant memories the better for our equanimity. Would it be prudent to recommend a hypochondriac to fix his attention on his abnormal sensations, and to keep bringing them to the surface for examination? Did any of us ever see a delusion cured by encouraging the patient to give expression to it and dwell on it? Is it not best to leave it alone and give it a chance to wither and atrophy. We "nurse our wrath to keep it warm," but it cools down if we turn to something else. "With a mental grief as with a physical pain," said Maudsley, "the right course is not to foster increased action, but to give it rest, and to allow the healthy energy of neighbouring parts to encroach gradually upon, and to subdue, the morbid action."

It is, from a hygienic point of view, the supreme virtue of the confessional that it confers what the psychoanalysts would call his much deprecated repression. By creating a belief in forgiveness it abolishes qualms of conscience which might unbalance the mind. Much melancholia has been attributable to keeping within the sphere of attention memories of faults and transgressions which should have been driven away by wholesome recreation; much, too, has been due to the hugging of sorrows which should have been discarded. Believing what I do of anti-repression, I am not surprised to find that those who practise it acknowledge many failures. I am, however, surprised to note that in a number of the cases reported as successful there is no evidence that the patients had been deliberately repressing certain painful elements in their mental content. They had simply and instinctively been trying to withdraw attention from the painful content and to fix it on other mental contents of a less painful or pleasurable kind, in accordance with the common custom of mankind. Dr. Rivers narrates an interesting case illustrating this point. It is that of an officer who "had found on the field of battle the body of a fellow officer blown into pieces, with head and limbs lying separated from the trunk, and who, from that time, was haunted by the ghastly vision of what he then saw. When he slept he had terrifying nightmares of the mangled remains of his friend, and so he dreaded to go to bed, and spent each day in painful anticipation of the night, and awoke during the night pouring with sweat." The psychotherapy in this case consisted in pointing out to the patient that the mangled state of the body of his friend showed that he had been killed outright and had been spared the prolonged suffering which is too often the fate of those who sustain mortal wounds. He brightened at once, and was ultimately discharged recovered, although he seems to have suffered from at least one terrifying dream after his discharge. Now, what psychotherapy, I would ask, is there in this? Was there ever a case of sudden death in which this euthanasia specific was not administered to the sorrowing

relations? Was there ever a mourner under such circumstances to whom, not being an idiot, the consolatory reflection, for whatever it is worth, did not spontaneously occur? But what had repression, or the relief of repression, got to do with it? It was substitution, and not anti-repression, that availed. There had been no forcing down of a hideous memory. It was on the surface, and was merely glossed over by the reflection that the friend's death was painless. But this officer, it seems, before he encountered the horrid sight that is alleged to have overcome him, had been buried as the result of a shell explosion, which had been followed by symptoms pointing to some degree of cerebral concussion, and it was, I suggest, cerebral changes due to the concussion with the lowered power of resistance they involved that enabled the horrid sight to take such a persistent grip of him—a grip which it gradually relaxed as these changes were rectified. Then, before the simple psychological anodyne of reminding him that his mutilated friend had suffered no pain was administered, he had been advised to keep all thoughts of war from his mind, and it was perhaps compliance with this—certainly not anti-repressive advice—that did him good.

Its Application to Dreams.

The anti-repression policy is applicable, we are assured, to dreamland as well as to daily life. Disquieting dreams, nightmares, and insomnia have always afflicted those who have taken part in war. Sir Walter Scott noted this.

"Soldier rest, thy warfare o'er,
Sleep the sleep that knows not breaking,
Dream of battlefields no more,
Days of danger, nights of waking."

But the appalling features of modern warfare have given to the dreams of our soldiers a peculiarly disturbing character which renders their alleviation more than ever desirable. What that alleviation, according to the psychoanalysts, consists in anti-repression. They teach that the patient suffering from such dreams must, on going to bed, make no effort to banish the remembrance of them, but must rather recall them, lest the dream substance, buried in the subconscious, may emerge therefrom during sleep. How the burial was effected is not clear, but the reason for the nocturnal resurrection is obvious enough. The mind is then no longer preoccupied by opposing impressions, but is left to ruminate on its contents, and the higher controlling centres being the first to go dormant, the lower or emotional centres are free to agitate. The result of this stimulation may be prevented by its voluntary initiation, but as sleep is impending, it is certainly not in accord with the popular notion on the subject or with physiological principles. Regarding bad dreams are common enough. They grow out of the cares of peace as well as out of the pangs of war, and the accredited mode of warding them off is to occupy the subdominant mind with something as remote from them as possible. The man who carries his worries to bed with him will get no sleep, or sleep with dreams in which these worries are mixed up; and of the thousands of expedients that have been devised to invite sleep when it is thus coy, and to keep it clear of worrying dreams, there is not one that consists in conjuring up the worries and turning them over in the mind just when sleep is invited. The rational treatment of insomnia is to discover the precise nature of the anxieties that are keeping the patient awake and remove them. Agreed! But how is this to be done? The anxieties are often real and clamant enough, and where they are fictitious they cannot be enucleated like an encysted tumour. The only way to dispose of them is to think of something else, or to circle round them at an ever-increasing distance in thought until they are lost sight of altogether, or to blunt the sensibility of the cerebral centres by sedatives and narcotics.

The Tendency to Emphasise Mental at the Expense of Physical Factors.

The tendency of the psychoanalytical school appears to be to seize on and emphasise mental factors in the psychoneuroses, and to pass lightly over personal physical factors of at least equal significance. In illustration of the effects of repression there is described the case of an able pilot in the R.A.F., who, when returned to duty after a crash, was ignorant of the construction of an aeroplane and denied that he had ever been in the air. But surely the crash was enough to account for this state of matters, without assuming a stand-up fight between fear and a sense of duty or any forced repression of a tormenting idea which should have been bravely confronted. We find frequently ascribed to repression cases of complete amnesia in men returning from the front with a large block of their mental life blotted out. Intense emotions in the war, but in civil practice I have never seen complete retrograde amnesia in a healthy young or middle-aged man, arising out of emotional excitement or mental struggle, but I have seen it constantly as a consequence of trauma or toxæmia. I would say that invariably after concussion there is forgetfulness of the events immediately preceding the accident, the impressions then received having been, as it were, developed but not

fixed in the brain and remaining permanently irrecoverable. When the amnesia exceeds this and extends back for days or weeks, then it may be safely inferred that there has been a physical lesion. That fear or mental shock without physical commotion should leave complete amnesia behind it is improbable, as the rule is that objects of alarm are exceptionally impressive. The whipping of boys at parish boundary lines was intended to ingrain the remembrance of the landmarks. But the perturbation of fright in its excitement of the perceptive powers makes a more indelible stamp than even an acute bodily infliction, and it seems unlikely that fright alone should have created a big gap in memory in war neuroses men.

That externally induced psychical states have played an essential part in the production of many of the war psychoneuroses is undeniable, and that the counteraction of these states by a psychical antigen self-produced, or by a psychical antidote therapeutically administered, has in many cases been eminently beneficial, cannot be gainsaid, but it remains to be determined within what limits the psychical antidote is efficacious, and how far, when efficacious, it is assisted by concomitant physical changes. The pursuit of the psychoneuroses are apt to set up a recurrent habit, and, if unrelieved, to run into structural changes that are beyond the reach of unaided psychical remedies.

General Conclusions.

In a large number of cases in which psychotherapy has been successful there have been coincident with it changes in environment, companionship, diet, and employment, which may have contributed largely to the favourable issue, and in a number of cases in which it has been unsuccessful the lapse of time, fresh air, exercise, games, shooting, or fishing have ultimately secured complete recovery. It is quite unjustifiable to talk of the futility of voyages and rest cures and changes of scene in the psychoneuroses, which, long before psychoanalysis, as such, was heard of, and without any preceding psychoanalysis beyond an accurate diagnosis, have in countless cases conduced to perfect recovery. When the new psychotherapy has as good a record of permanent cures as these methods of treatment it will command fuller acceptance than it does to-day, and, as things stand at present, I would not exchange for it the use of the bromides alone. The extremes to which the psychoanalysts push their panacea is illustrated by Jung's contention, in defiance of all observed facts, that the psychological factor plays a decisive rôle in the origin and course of dementia præcox. Those of us who have watched the slow progress of the malady, sometimes from early childhood, who have noted the physical abnormalities and signs of defective development and degeneration which are so commonly associated with it, will not assent to that view of it.

I would be the last to depreciate the importance of the psychical factor in the causation of insanity, or in its treatment, but I must again, in justice to our department, insist that psychotherapy is no new discovery. Moral treatment, as it has been called, has long been diligently carried on in our asylums. I open at random a British medical report for the year 1857, and I find recorded under moral treatment first, occupations of many kinds—gardening, field-work, carpentry, turning, sewing, knitting, printing; secondly, amusements, dances, theatricals, concerts, bowls, cricket, billiards, excursions; thirdly, instruction, lectures, and classes for modern languages, music, and drawing, and more than that, I find testimony borne to the restorative influence of the personal intercourse of the physician with his patients, and of the impact of the sound on the unsound mind. "The advantage," the report says, "of the association with healthy and vigorous minds has long been recognised in the treatment of the insane. Reading is no substitute. Communication thus with the thoughts of even the wisest and best has not the influence of personal intercourse. The latter is regulated according to the varying phases of the emotions, and while new images and suggestions and sympathy are poured into the wounds of the sufferer, they are adapted to his character and condition."

That the very same kind of moral treatment thus practised in our asylums nearly three-quarters of a century ago is still efficacious to-day is evident, the result of its experience, recommends of Manchester, as the result of his experience, recommends in psychasthenia after shell shock suitable occupations, such as netting, fretwork, wood-carving, sewing, knitting, basket-making, field-work, gardening, and motor-vagon driving; games, such as draughts, dominoes, cards, and billiards; and studies, such as foreign languages, drawing, painting, photography, and music. Dr. Williamson recommends also prolonged sleep, and accentuates the importance of avoiding the reading of war news, the discussion of symptoms with other patients, and the direction of the thoughts into new channels. Sir Frederick Mott has testified to the benefit derived by soldiers suffering from shell shock at the Maudsley Hospital, from field-work, gardening, poultry-keeping, metal-work, and carefully regulated physical exercises. Much sound psychotherapy lurks behind the sweat of the brow.

THE CONTINUITY OF HOSPITAL TREATMENT.

AN interesting address on Old London and the Origin of the London Hospitals was delivered at St. Thomas's Hospital on May 23rd by Mr. G. Q. Roberts, the secretary of the hospital, mainly with the object of drawing attention to the admirable work of the League of Mercy. Incidentally, however, the lecture was a powerful plea for the continuance of the voluntary system of hospital maintenance, which, as Sir William Collins, who presided, pointed out, has played a very important part in the social life and history of London.

The lecture was a running commentary on a large number of maps, plans, and pictures of old London and its hospitals, which were thrown upon the screen. By way of striking contrast with the quaint views which were to follow, the first picture showed St. Thomas's Hospital at the present time, taken from an aeroplane, and presented a view of the river Thames with Westminster Bridge running diagonally across the picture, the hospital being at one end and the Houses of Parliament at the other. So imposing are the buildings of the hospital, especially when viewed from the terrace of the House of Commons, that a visitor from the United States when being entertained by Members of Parliament at tea mistook the structure for the Houses of the "Principal Aristocracy," said Mr. Roberts.

Provision for the Sick in Olden Times and Now.

It is almost impossible at the present time, the lecturer continued, to realise exactly what London was like in the past, for its origin lay hidden in remote antiquity. The river afforded easy means of communication and, surrounded as the place was by marshes, one could easily understand why it should have been selected as a stronghold. After the arrival of the Danes it was strongly fortified, and the Norman Conquest many religious houses were built, and these occupied about one-third of the city, large numbers of the inhabitants being employed in and about them. Most of these houses made provision for the sick poor, and long before the thirteenth century St. Thomas's Spital had been established as an offspring of St. Mary Overie, while St. Bartholomew's was connected with the priory of Rahere, and St. Mary's Spital, which gave rise to Bethlehem Hospital outside Bishopsgate, was founded about 1256.

When Henry VIII. closed all religious institutions and confiscated their properties London suffered greatly owing to lack of hospitals for the poor, and the citizens were greatly inconvenienced by the odours emanating from the sick lying about the streets. The citizens petitioned the King for the restoration of the hospitals, and before his death Henry restored St. Bartholomew's to the people. It was, however, Edward VI. who granted a charter conveying to the mayor and corporation rights by which St. Bartholomew's was given for the treatment of the sick, Christ's Hospital for the education of neglected and fatherless children, Bridewell for malefactors, and Bethlehem for the treatment of the insane, these being coordinated with the work of St. Bartholomew's. Bridewell and Bethlehem were joined together in one institution. The citizens of London at once set to work to organise the raising of funds, householders were individually called upon, and arrangements were made for appealing to the congregations in churches, sermons being written for and supplied to these preachers who were by themselves incapable of moving the hearts of their hearers.

After the Fire of London medicine and surgery made great advances, and the needs and requirements of the sick poor became insistent. New hospitals were established and actively supported by Cheshelden and his colleague Mead. St. Thomas's and St. Bartholomew's Hospitals providing the staffs for carrying on the work. Incidentally the lecturer remarked that Cheshelden was not only a great surgeon but the actual architect of old Patney Bridge. St. Mary's Hospital was built on a site secured from St. George's Hospitals Westminster, the London, Middlesex, and St. George's Hospitals followed, the tendency being to keep the institutions outside London.

Continuity of Treatment.

In conclusion, Mr. Roberts said that the voluntary hospitals of London were going through a very difficult time. While their income had not advanced their expenses had increased, and they had to move with the times and pay higher salaries, inadequate though they were. Many people were ready to say "let the Government take over the hospitals," but the voluntary system of London had existed through centuries, and those people who had seen something of institutions which had come under Government control and who knew the work of hospitals insisted, in the best interests of the community, that the voluntary system should be maintained. The Government would have to give some help, but in such a way that the voluntary principle was not destroyed, every encouragement being given for carrying on the advance which history showed had been made in the treatment of the sick poor, and until perfection was reached.

REFERENCE BOOKS.

The selection of a suitable school is a question of anxiety to all parents, and in these days of high prices and attenuated incomes it becomes more than ever necessary to obtain accurate information as to the standard of teaching and the fees to be paid before a decision is made. Great help is afforded in this connexion by the "Public Schools Year Book," which appears again as a comprehensive guide to public and preparatory schools, universities, professions, public services, and business careers. Edited by Mr.

H. F. W. Deane, librarian to the Dean and Canons of St. George's, Windsor, and Mr. W. A. Bulkeley Evans, secretary to the Head Masters' Conference, of which it is the official book of reference, the year book gives a list of schools in alphabetical order, together with staffs, fees, and scholarships. A tabular arrangement of medical scholarships gives the name of the scholarship, its annual value, how long tenable, and the conditions attached to it. The brief notes on openings for young men in both professional and business undertakings include pharmacy, and welfare work. — A companion volume to the above is the "Girls' School Year Book (Public Schools), 1919-1920," the official book of reference of the Association of Head Mistresses, in which similar information similarly arranged is provided for those seeking educational institutions and careers for girls. Both books are published by the Year Book Press, Limited, 31, Museum-street, W.C. 1, the price of the first-named being 10s. 6d. and of the second 7s. 6d.

The Year Book of Scientific and Learned Societies of Great Britain and Ireland, 1919, just issued, is a useful compilation, containing as it does a record of the work done in science, literature, and art during the session 1918-19. Of its 336 pages 35 are devoted to medical men to be of course, many papers of interest to chemistry, biology, and found in the sections devoted to medicine, though there are sections are given the addresses of the societies, their objects, date of meetings, subscriptions, names of officers, publications, and the names of papers read during the session, a very full index to the societies making reference easy. Twenty-six societies not previously appearing in the Year Book now find a place, and music claims its place among the learned societies. The section of medicine is naturally headed by the Ministry of Health. Messrs. Charles Griffin and Co., of Exeter-street, Strand, are the publishers.

HAND-PROPELLED TRICYCLES FOR THE TOTALLY DISABLED.

IN view of the "rally" of hand-propelled tricycles which is to take place at Regent's Park, London, to-day (Saturday), the Ministry of Pensions state that the provision of hand-propelled tricycles in cases of total disablement was not until two years ago, a recognised duty of the State. During the late war, until April, 1918, the Lord Kitchener National Memorial Fund supplied 276 machines, but from that date the Minister of Pensions has been responsible for the supply where a machine is essential for a man's health or to enable him to get to and from his work. Thus, in all cases of amputation of both legs a hand-propelled tricycle may be provided for outdoor use (and in addition, where required, a Merlin chair for indoor use). In paraplegic cases similarly a tricycle may be provided as soon as the man is medically certified to be able to make use of it for the benefit of his health. Machines may also be supplied on a medical certificate that they are necessary, on the grounds above mentioned, to men who have suffered amputation of one leg and one arm, and in other cases of grievous disablement, each of which is dealt with on its merits. Applications are made through the Local War Pensions Committee. The total number ordered by the Ministry up to May 31st, 1920, was 1455, of which at least 1350 have been supplied. It is known that the number of men who have suffered amputation of both legs is 951, and it may be taken that about 900 of these men are in possession of machines. The remaining 550 are for paraplegic and other special cases. The Ministry are responsible for the repair and renewal of the machines, and of those provided by the Lord Kitchener Fund.

AN OPPORTUNITY FOR INVALIDS.

To the Editor of THE LANCET.

SIR.—To those cut off by bodily weakness from the wider activities of life the Invalids' Auxiliary of the Edinburgh Medical Missionary Society offers an interesting opening. The Auxiliary was founded some fifty years ago, and has as its aim to give invalids an opportunity of helping fellow sufferers in other lands. A sale is held about the end of the year in Edinburgh of work contributed by members of various Auxiliary, the proceeds being apportioned amongst various medical missions. Contributors are kept informed as to the destination of their gifts, and an endeavour is made to establish a living link of sympathy between those who give and those who get. To many invalids in past years the Auxiliary has brought an added interest in life, and a congenial means of useful service. The committee will welcome new contributors, and would suggest to doctors and nurses who have the care of invalids to bring this form of activity to the notice of their patients who would benefit by being interested in helping other sufferers.

Further particulars will gladly be furnished by Miss Clark, 16, Coates-gardens, Edinburgh, or Miss Annie Walker, assistant secretary, E.M.M.S., 55, George-square, Edinburgh.

I am, Sir, yours faithfully,

H. F. LECHMERE TAYLOR, M.D.,
Secretary and Superintendent, Edinburgh
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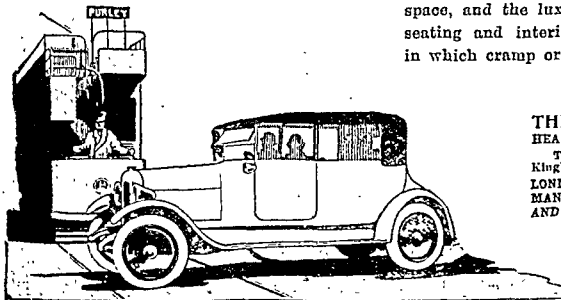
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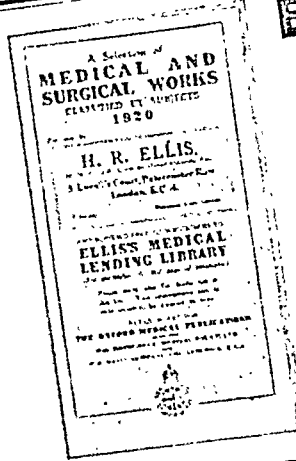
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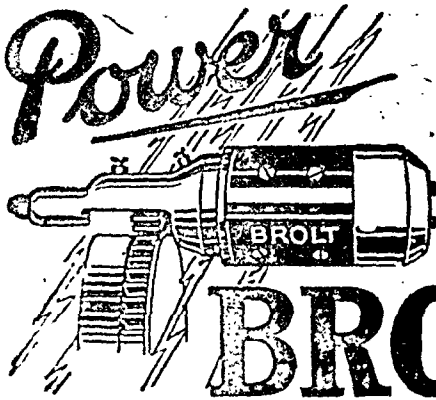
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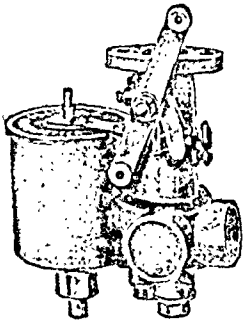


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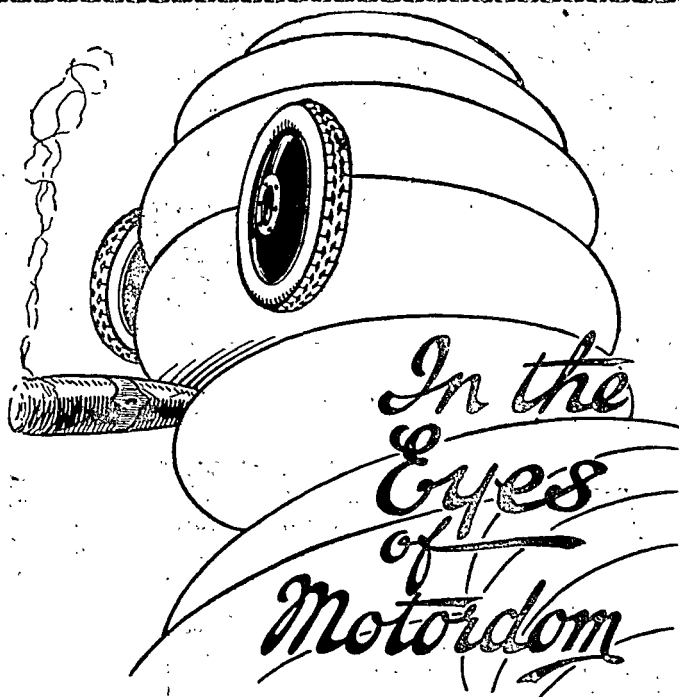
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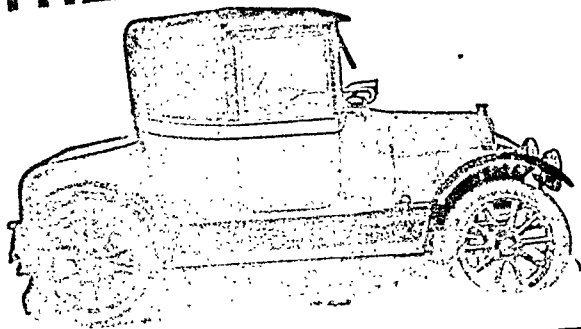


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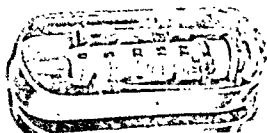
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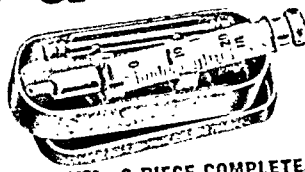
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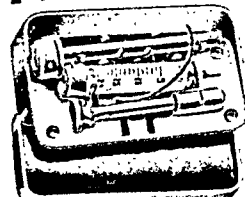
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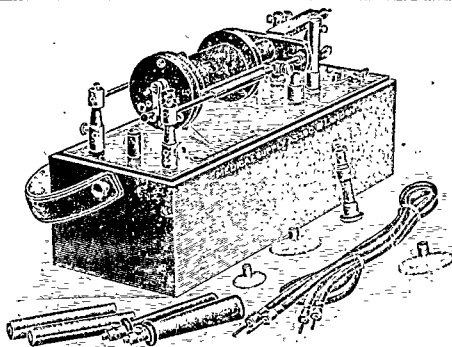
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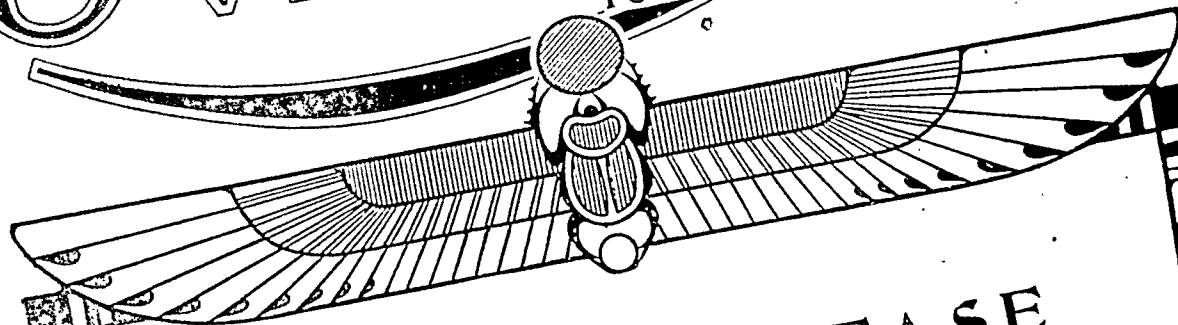
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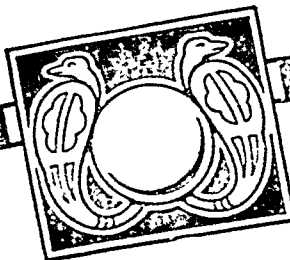
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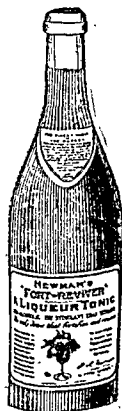
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together with the dynamic action of quinine and strychnine.

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To the Skin Value of SAPON SOAPS

from members of the Medical and
Nursing Professions

SAPON SOAPS LTD.,

SIRS,—I am sending you an unsolicited letter in regard to your "Sapon" Soap as I have been so gratified with such excellent results, both from a domestic and medicinal point of view.

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I wish every success to "Sapon" Soap and hope it will soon supplant many of the harmful chemical preparations on the market.

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GENTLEMEN,—

A little while ago I sent for one of your free samples of soap to try on a patient who had a very greasy skin. In the meantime I got a baby who showed every sign of soreness. I tried the very best of powders and creams; last week I tried your soap and in two or three days baby was almost better, but we did not know whether it was the soap or the thick (pure) cream I was using until we went away for the day and had to use another soap. In the evening baby was very restless and red, and next morning the whole trouble had returned; it is now settling down again nicely through the use of your Russian Tar Soap. The mother is so delighted that she has ordered some from our local chemist who wanted her to try Coal Tar Soap, but she said none other than your Sapon Russian Tar Soap would do. The chemist has promised to stock this soap and I shall be delighted to buy the same for our own use. Our water here is very hard, and I have passed on your other sample to another lady.

I felt I ought to thank you for the samples, for I should have been very grieved to have left a sore baby, yet I thought I had tried everything. I showed the doctor and told him the benefit we had received from the use of your soap. The mother is going to try it for a maid who is suffering from Eczema.

Again thanking you,

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Dose ... 3 ss. Ex aqua.				

This product, distinctively coloured, presents a convenient, concentrated, and stable preparation for rapid dispensing, which on dilution forms a bright elegant mixture.

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Also prepared omitting the Pepsin or the Morphine.

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A palatable and most agreeable preparation, the highly sedative effects of which are not marred by untoward reactions. Special care has been taken to ensure the attainment of the full therapeutic contents in stable solution.

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GUARANTEE

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Carbohydrates {	Lactose	36'9	...	...	...	...	...	46'50
	Cane Sugar	9'6	...	...	...	...	...	
Mineral Matter ...	...	...	...	...	...	...	...	6'50
Moisture ...	...	...	...	...	...	...	...	8'20



Fats ...	...	...	...	...	...	...	...	20'00
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Carbohydrates {	Lactose	34'3	...	...	...	...	...	44'00
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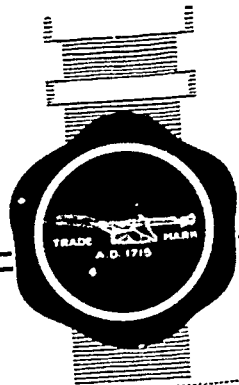
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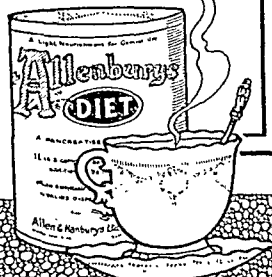
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A colloidal suspension of Copper for intramuscular injection. For use in cases of inoperable Carcinoma, &c.

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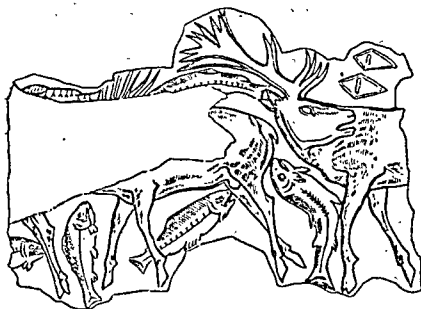
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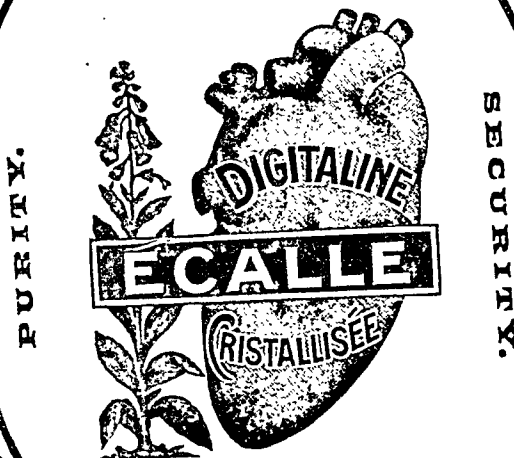
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*Delivered at the Royal College of Surgeons of England
on Feb. 9th, 1920.*

By H. TYRRELL GRAY, M.A., M.C. CANTAB.,
F.R.C.S. ENG.,

SURGEON TO OUT-PATIENTS, WEST LONDON HOSPITAL; SURGEON TO HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, AND TO THE ITALIAN HOSPITAL; HUNTERIAN PROFESSOR (LATE ARRBIS AND GALE LECTURER), ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MR. PRESIDENT AND GENTLEMEN,—The clinical study I have made of this subject arose insensibly out of an investigation into the nature of surgical shock some years ago in conjunction with Dr. Leonard Parsons. I wish at the outset to repeat the apology then offered for inevitable shortcomings in so complicated a subject, involving a familiarity with such specialised subjects as physiology and comparative anatomy, which a clinician can hardly hope to command. I am also anxious to apologise for any deficiency of clinical material brought forward. The difficulty of tracing cases after some years is well recognised; and in addition the recent dislocation of national life deprived me of much material I had hoped for.

If the normal mechanism by which food is passed along the intestine depends upon a complicated and coordinated series of nerve impulses or reflexes (which are as yet imperfectly understood), clinical study of the means by which the delicate adjustment of these impulses can be deranged in disease may, in the future, throw light on many unsolved problems.

Such a hope forms my excuse for attempting such a difficult subject, approached from an entirely different point of view from that of the scientific investigator; and I ask the indulgence of those whose special subjects are trespassed upon. Clinical evidence is usually indirect, often misleading; even so, I hope to make my deductions as impartial as possible.

These are of two distinct varieties—peristaltic and rhythmic—in connexion with these there are three factors to be considered: (1) involuntary muscle, with its faculty of responding to stretching by contraction and its rhythmic properties; (2) sympathetic nerve-supply, the stimulation of which inhibits the contraction of intestinal muscle, except at the sphincters, where the reverse effect is obtained (as shown by Elliott in the case of the coeliac plexus); and (3) parasympathetic nerve-supply, whose stimulation causes contraction of intestinal muscle, consisting in the vagus for the stomach and small intestine and the pelvic visceral nerves for the large intestine. Both of these end in the junctional tissue of Auerbach's plexus.

The peristaltic waves may be regarded as the response of the intestine to a mechanical pressure stimulus of its contents, and differs from the more rapid rhythmic waves in that each contracting segment is accompanied by a synchronous inhibition of the segment immediately distal to it. The contracting segment closes on the intestinal contents, and the following segment, at least, is inhibited. This wave of contraction and inhibition travels down the intestine, driving the contents with it, a process assisted by increased rhythmic contractions above (Baylis and Starling). The rhythmic waves and the synchronous function is to churn up and inhibit segment, and to cover as wide an area as possible. They also distribute the contents. They have another function, to which I will refer in a moment.

The mechanism of the true peristaltic wave appears doubtful. Baylis and Starling suggest that it is dependent on a local reflex at Auerbach's plexus, though the latter appears to be concerned with the termination of the waves in the circular fibres only. Such a local reflex would be inadequate in character.

I hope to adduce clinical evidence in favour of the view that it is possible to stimulate mechanically the non-modulated sympathetic fibres in their course. If this is really so, it is not possible that the contraction, elicited by the mechanical stimulus of intestinal contents, is itself responsible for exciting mechanically the intramural inhibitory sympathetic fibres to the segment immediately in front?

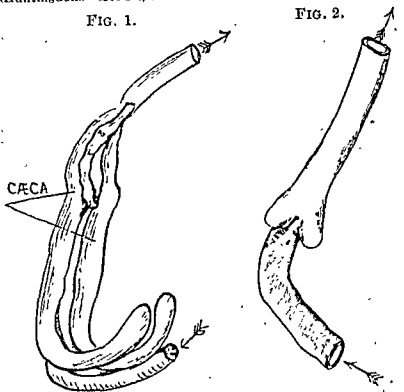
Further, the function of Meissner's plexus is unknown, but is it not possible that this gangliated plexus is associated with these inhibitory sympathetic fibres, which receive their mechanical stimulus through its agency? Suffice it that the presence of sufficient contents in the intestine to excite a mechanical stimulus

seems normally to be the exciting cause of a peristaltic wave, and perhaps to be associated with a stimulation of the intramural efferent sympathetic fibres in the segment concerned.

A reference to comparative anatomy teaches us that the intestinal tract develops its modifications to suit the character of the food. If we exclude the most primitive forms, where the small and large intestine are in direct linear continuity (the differentiation being characterised by numerous variations from a mere increase in calibre to the development of large symmetrical pouches or caeca), for present purposes we may classify the types roughly into those in which the digestive organs exist as a unit and as carnivore at the other. Thus ruminating broadly in bovinae, the bulk of the food is difficult to digest, and contains a minimum of nutritive elements in a maximum of bulk. In such animals the caecum with appendix is developed and highly specialised as a propelling organ to a marked degree (e.g., the rabbit). It seems evident that the highest differentiation of small from large intestine, evidenced by a rectangular junction of the two, so cuts off the one from the other that the maximum mechanism is developed for the removal of indigestible waste along the small intestine; and therefore, collects in the large coiled caecum and appendix until its bulk is sufficient to elicit, by a mechanical pressure stimulus, peristaltic contractions along the axis of the large intestine.

the other extreme are those types whose food becomes more and more concentrated in a progressively decreasing bulk. In these types it is clear that if distribution by bulk were to be the principal factor in initiating peristalsis the food would have to collect for an unnecessarily long period before this would be effected. Accordingly, the necessity for the more and more abrupt and more and more concentrated becomes as we approach these higher types, culminating in man, where we find, as usual, the involution of the appendix characterised by its extreme variability in size and position. This contrast is particularly well illustrated by a comparison of the types of caeca found among carnivorous and herbivorous birds; the former having very short and broad caeca, and the latter (the human being) very long and narrow caeca, and a very long, thin (Huntroped). (See Figs. 1 and 2.)

FIG. 2.



Cæca of herbivorous birds (the hen). Cæca of carnivorous birds
(After Huntingdon) (double crested cormo-
(After Huntingdon)

The gradual involution of the appendix and shortening of the caecum—i.e., an approach to the human type—is illustrated in the case of some of the monkeys, while with the assumption of the upright position in anthropoid apes the resemblance becomes almost complete. The more easily digestible food in these higher types is also submitted to a more rapid transit through the bowel after a more complete and rapid segmentation in the small intestine.

These considerations seem to justify the view that, whereas peristalsis may be the main mechanism of propulsion when food is taken in slowly, transit, a more complex mechanism is essential when it is concentrated and largely fluid (at least when it reaches the intestine). Accordingly, in the highest types—i.e., in man—peristalsis is superimposed a more complex mechanism of small intestine contractions associated with a special contraction of Auerbach's plexus, which has in recent years been worked out by Professor Arthur Keith and forms the "peristaltic pump" theory."

Rhythmic waves of contraction (an inherent property of intestinal muscle) are accentuated in the stomach and small intestine by the vagus; in the large intestine by the pelvic splanchnic nerves; in the colon, the splanchnic parasympathetic—and both terminating in the functional tissue of Auerbach's plexus. Professor Keith tells me that, though Auerbach's plexus is plentiful in the lower types of man, he finds it more highly differentiated in the higher types. This fact seems to me to confirm the view just expressed that a more complex mechanism of nerve impulses is developing as an adjunct to the more primitive mechanism of peristalsis as the food becomes bulky.

There is no need to refer in detail to the now well-known "nodal theory" of Keith; it is sufficient for the moment that the nodal points act as "pacemakers" in their own segments for the rhythmic contractions, which become feebler towards the end of a segment, immediately before the next nodal point is reached. Such points are found to correspond with the areas of normal delay in the passage of food as evidenced by X ray examinations.

In observing rhythmic contractions of the small intestine in the living subject, when opening the abdomen under spinal anaesthesia, I have been particularly struck with the extraordinarily small calibre maintained by the normal tone of the small intestine—a calibre which is markedly diminished by the rhythmic waves (at least, this is striking in some cases), where the diameter of the bowel appears to be reduced roughly to the size of a slate-pencil. Their function as a means of segmenting and distributing the chyme is well known; but I believe they also serve to maintain constant contractions on the intestinal contents, and when these are accumulated in sufficient bulk (i.e., particularly at the normal areas of delay towards the end of the nodal segments), to elicit that mechanical pressure stimulus which initiates peristalsis and forces the contents into the next nodal area, there to be dealt with in a similar manner.

The rhythmic waves may, perhaps, be regarded as "feelers" thrown out to ascertain the pressure, either of a bolus or collection of fluid contents; and when such a wave contracts upon contents of sufficient bulk it will, by its contraction, elicit the pressure stimulus necessary to excite a peristaltic wave which drives them onwards. These rhythmic waves, normally continuous during life, become accentuated with the physiological stimulation of the vagus, which may be regarded as the key which starts the whole complex mechanism working.

The difficulty experienced by physiologists in exciting the normal secretory and motor functions of the vagus by electrical stimulation leads one to believe that these are normally elicited reflexly by afferent impulses. Thus the sight, smell, and taste of food can initiate vagus impulses, both secretory and motor. Normally appetite is responsible, and this is usually attributed to movements of the stomach. It is difficult to see how movements of the stomach can be responsible for the sensation of appetite, since they are perhaps most marked when the stomach is full and hunger is appeased! It is, at least, not impossible that the engorgement of gastric and pancreatic glands, during the resting period, initiates an afferent vagus stimulus responsible for the sensation of hunger, and eliciting the efferent response to glands, gastric and intestinal muscle. Thus gastric movements would be coincident with, but not responsible for, the sensation of hunger. Such a view would be supported by the increase of hunger during cold weather, when surface vessels are contracted and deep structures proportionately engorged. A somewhat analogous example may perhaps be found in the afferent vagus stimulus provided by the fully oxygenated alveolus of the lung. I think there is clinical evidence in support of this view. In any event, we know that active gastro-intestinal movements and secretions are initiated by such agencies, and that this increased activity extends over the whole intestinal tract, including the large bowel, as clearly demonstrated by Hurst.

In the case of the large bowel, however, the contents being largely semi-solid or solid, the more complex rhythmic mechanism appears to be less striking, and movement of contents more dependent on peristalsis. Here the disappearance of the caecum and appendix as an initial propelling organ is compensated by the development of a well-marked nodal point at the ileo-caecal junction (ileith), which becomes its substitute as "pacemaker" for the ascending colon. Thus the accentuated rhythmic contractions, initiated by the vagus when food is taken into the stomach (or through the lumbar centre during defecation), will affect the ascending colon also, and the rhythmic contractions on to semi-solid contents of large bulk will elicit strong peristaltic waves resulting in "mass movement" (the "gastro-colic reflex" of Hurst)—such a process being invigorated at each succeeding nodal segment.

The so-called "antiperistalsis," or backward movement of contents, in the colon may perhaps be explained by ordinary peristaltic contractions (evolved by the mechanical stimulus of bulky contents alone), which are too feeble to initiate a mass movement until the accentuation of the mechanical stimulus by the sudden pressure of additional food and an increase in rhythmic contractions. These feeble peristaltic contractions may be sufficient to drive the contents on a little way and allow them to slip back again, thus causing a backward and forward movement until the accentuation of the rhythmic waves initiates a mass movement onwards. Mass movement is also initiated by the act of defecation (Hurst), the accentuated rhythmic waves being started by a reflex stimulation of the parasympathetic through the lumbar centre. It appears that, as we pass over the intestinal tract, the gradual change of the contents from fluid to solid is concomitant with a gradual decrease in the domination of the parasympathetic, a corresponding increase in the domination of the sympathetic (an essential factor in peristalsis), and also by a corresponding decrease in the rapidity of transit—in fact, a gradual approach to the predominating mechanism in herbivora. In other words, there is a varying adjustment between the opposing mechanisms of contraction and inhibition in different parts of the gastro-intestinal tract according to the character of the contents, resulting in the variation in the method and rapidity of distribution and propulsion already noted. Such a gradual reversal of the dominant innervation seems to me to be supported by a consideration of the secretory mechanisms. These are somewhat analogous in this respect; that whereas vagus stimulation is responsible for the initial secretion of gastric and probably pancreatic juice, the continuation of such secretions is mainly chemical. Langdon Brown has emphasised the fact that as we descend the alimentary canal the nervous factor in exciting secretion gradually gives way to the domination of the chemical. So that this excitation, initiated as a nervous impulse, is carried on in the stomach by gastric secretion from the pyloric glands (Elkington); in the pancreas by duodenal secretion, excited by the action of acid gastric chyme on the duodenal prosecretin (Hayles and Starling); and in the small intestine by the pancreatic secretion and the mechanical stimulation of food (Starling).

In two such closely allied functions (secretory and motor), if the mechanism of one gradually changes to meet food requirements in its different stages, it should not be surprising to find a concomitant reversal in the other.

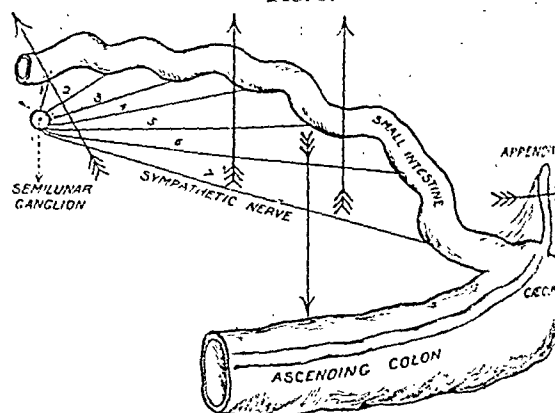
The predominance of the sympathetic or inhibitory innervation and the comparative ease with which its impulses can be excited in the lower portions of the intestinal tract play, I believe, an important part in the causation of disease.

B. Pathological Derangement of the Normal Intestinal Mechanism.

Lesions of the mesentery.—The difficulty of watching normal intestinal movements in man has been due to the fact that such movements cease immediately the abdomen is opened. This phenomenon has been erroneously attributed to the mere exposure of the viscera to the air. That this is not true is proved by the continuation of such movements when the abdomen is opened under spinal anaesthesia. This proves that the inhibition of intestinal movement on opening the abdomen is due to a reflex sympathetic stimulation, and it occurs even before the abdominal cavity is exposed. This is well illustrated during operations for acute obstruction. During the course of a study into the nature of surgical shock, Dr. Parsons and I made numerous blood pressure observations during abdominal operations in man and animals. We found that while local vascular effects were masked by the dominating centripetal impulses, if these were satisfactorily excluded, local changes could be well studied.

Thus, whether general or spinal anaesthesia was employed, no obvious blood-pressure variations could be attributed to manipulation or crushing the bowel wall—a fact which harmonised with its well-known "insensitiveness." On the other hand, if centripetal impulses were excluded, by operating under spinal anaesthesia, a marked rise of blood pressure arose from manipulation of, or traction on, the mesentery. Such a rise is due to a mechanical stimulation of the efferent sympathetic vaso-constrictor nerves passing through the area involved, and was proportionate to the violence of the stimulus. We found, further, that traction of the mesentery downwards induced a larger rise of blood pressure than upward traction, which indicated (Fig. 3) that the extent of the

FIG. 3.



Numbered nerves stimulated by traction on mesentery in different situations. (Tyrrell Gray and Parsons.)

phenomenon, due to vaso-constriction, was proportionate to the number of efferent fibres mechanically stimulated. The higher up manipulations were carried out, the greater was the blood pressure excursion, until finally the greatest rise of pressure in animals was elicited by mechanical stimulation of the semilunar ganglia themselves. One fact which struck us was the domination of the sympathetic vaso-constrictor fibres in such stimuli, varied effects being only observed during traction on the cardiac end of the stomach.

I was impressed at that time by the possibility that the phenomenon observed in relation to the blood-vessels might equally well apply to the intestinal muscle, possessing an analogous innervation. Accordingly, a close observation of the effect of operative manipulations under spinal anaesthesia showed that, whereas manipulations of the bowel wall alone inhibited only the local section involved, manipulations of the mesentery inhibited the whole area supplied by the mesenteric nerves so stimulated. As in the case of the blood-vessels, so in the case of the bowel movement, traction downwards will inhibit a wider area than traction upwards, a larger number of nerves being involved (Fig. 3). Flexion and manipulation of the upper mesentery inhibits the function of all the small intestine. We know that intestinal inhibition results from inflammatory lesions of the peritoneum, particularly the mesentery; if the possibility of mechanical stimulation and inhibition be granted, a wide field of surgical study is opened up.

Inflammatory Inhibition.

General peritonitis.—An extreme example of widespread intestinal inhibition from this cause is to be found in general peritonitis. Here the presence of pus constitutes the stimulus to the whole of the mesentery, and provides a constant irritating excitation of the efferent sympathetic inhibitory fibres to the whole intestine. The so-called "paralytic ileus" resulting is not really paralytic, but due to continuous active inhibition of intestinal movement, and is to be regarded as the natural mechanism for insuring immediate rest to an inflamed and injured structure—one of the natural principles to be initiated in the treatment of inflammation. Here a recognition of the nerve impulses involved guides the treatment of peritonitis. For, if the active efferent inhibition (persistent as long as the lesion is active) is protective in character, such an intestinal immobility is to be resisted and initiated in every means. The resulting afferent stimuli are a source of danger to the synapses of the vital centres—their mitigation is therefore indicated.

These principles largely form the basis of the Fowler treatment, which further aims at the gravitation of infective fluids to the point where the smallest number of afferent muscular and peritoneal nerve fibres will be stimulated. To the appreciation of these factors is largely due the marked improvement in the results of the treatment of peritonitis in the last decade. Nerve impulses associated with peritonitis can perhaps better be illustrated by considering a local lesion, and appendicitis may be chosen as an example.

Acute appendicitis.—If the comparative insensitiveness of the bowel wall, as demonstrated both by operations under local anaesthesia and by blood-pressure records, be borne in mind, the variability in presence, absence, or severity of symptoms accompanying the various types of appendicitis is a surprising feature. It is common experience that the symptoms often bear little relation to the lesion. One feature has struck me forcibly for some years—namely, that when the appendix is extra- or retro-caecal in position the onset of vomiting and constipation is so pronounced and is often absent. This must be a common experience. Indeed, it is not uncommon to find an extra- or retro-caecal appendix abscess unassociated with any definite symptoms except discomfort, malaise, or a little pain, even when the local lesion is severe. A perfectly free appendix, suddenly and severely infected it is true, cannot induce the severe pain, vomiting, and constipation immediately from involvement of the adjacent peritoneum and mesentery; but it will then usually be found at operation that the mesentery is thick, oedematous, and thrombosed; and I believe in this type the primary lesion is usually a thrombosis of the mesenteric vessels, giving rise to a pseudo-obstruction, the appendix lesion being secondary. Thus the inflamed, free, or adherent appendix stimulates its own, and the adjacent ileal, mesenteric nerves in the ileo-caecal region, as well as those of the peritoneum, just as did general peritonitis in the case of nearly all the mesenteric nerves. (This must be a common experience, much more limited in this respect.) The result of such an inflammatory stimulus is again both efferent and afferent.

The stimulus to the efferent nerves is evidenced by a protective spasm of the local supply by the sympathetic nerves involved—i.e., the ileo-caecal plexus, which probably delays the passage of contents, inhibits the ileo-caecal nodal point of Keil, and so lead to constipation.

The stimulus to the afferent ileo-caecal nerves evolves reflexly from the coeliac plexus system, a general efferent sympathetic stimulation which reacts as follows: 1. In the inhibition of all the intestinal muscle, particularly the large bowel, which will accentuate the degree of constipation initiated by the local inhibition. 2. With the inhibition of the intestinal muscle and the pyloric end of the stomach will be associated the spasm of the pyloric and ileo-caecal sphincters. 3. The stimulation of the splanchnic nerves causes an excessive secretion of succinate extract which still further inhibits the intestinal muscle and accentuates spasm of the pyloric and ileo-caecal sphincters. Also the increased secretion of the pancreas, the secretion of this gland will be diminished as the stimulus to some extent intestinal secretions also. Thus pylorospasm is further accentuated. 4. That there is an associated violent afferent stimulus is evidenced by the initiation of vomiting through its efferent nerves. In this case the sympathetic stimulus does not mask the vagus because the cardiac portion of the stomach, which is probably not inhibited by sympathetic fibres, contracts uninfluenced by such impulses. This contraction of the stomach end, then associated with sympathetic inhibition of the pyloric end and spasm of the ileo-caecal sphincter, explains the persistence of vomiting while the irritation of the local lesion is most active.

Associated spasm of the pylorus with intestinal lesions was demonstrated Murphy and Cannon, who pointed out that after operation on the intestine the pylorus remained closed for a variable period, depending on the situation of the lesion. This reflex pylorospasm is again clearly a protective nervous mechanism to prevent the intestines functioning as long as their active inflammation continues for complete rest.

How far the general sympathetic stimulus inhibits the secretory functions is doubtful. That it does so through the adrenals in the case of the pancreas is probable; and in so far as secretion of the excretory glands is influenced chemically by pancreatic secretion, the intestinal glands may be similarly affected. Clinically gastric secretion is increased.

The association between the appendix and the pylorus has long been a recognised clinical fact, and the term "appendix dyspepsia" is a happy one. That the appendix has in itself any evident effect on the stomach is a story which for a moment believe—clinical and experimental evidence are too meagre—but this view, and the reflexly in the manner shown by lesions involving the meso-appendix, the ileo-mesentery, or the parietal peritoneum, from inflammation of the appendix, seems certain.

I have taken the appendix as an example of the frequency with which the same considerations naturally apply to lesions of a similar character elsewhere. For example, the colicky pains caused by subacute inflammation of the mesenteric glands is probably due to direct inhibition of the segment of bowel supplied by the irritated coeliac sympathetic fibres. I have entered into the irritated coeliac plexus of the nerve impulses responsible for the symptoms of the acute appendicitis because it has a distinct bearing on the next aspect of my subject.

Mechanical inhibition.—I am now anxious to show that an analogous inhibition may result from mechanical stimulation. During operations performed for the relief of acute obstruction immediate protraction of the large bowel through the incision. Such patients are usually verging upon a second or depressor stage of shock, and this phenomenon is usually accompanied by a varying degree of collapse. That this is not due to exposure to the air of cold is proven by the fact that no such blood pressure variations are observed under ordinary conditions, nor is there the same tendency for the intestines to prolapse, nor is there sudden release of intra-abdominal pressure. That this may

be a contributory factor cannot be denied; but that it is not the principal factor was shown by Dr. Parsons and myself from a study of the post-mortem blood pressure, pulsations, and respiratory tracings in artificial distension of the bowel during sigmoidoscopy. We stated—

1. That the vaso-motor variations are not due mechanically to increased pressure in the abdominal cavity. For the pulse and respiratory rate are increased instead of being slowed, as would then be the case.

2. That direct stimulus to the bowel wall is not responsible. For our experiments have repeatedly demonstrated that manipulation of the bowel wall is without any ascertainable effects on the blood pressure.

Distension of the intestine induces tension upon the mesentery, and from the stimulus to this structure, with its contained nerves, arises the impulse to the vaso-motor centre; to this rise in blood pressure is responsible. The stretching and stimulation of the mesenteric nerves during intestinal distension, we believe, an important bearing on intestinal activity, blood-supply, and shock (from afferent impulses) in clinical medicine and surgery.

Again, in experiments on animals the way in which distended intestines stand away from the root of the mesentery is striking. There seems to be considerable evidence that distension of the intestine, beyond the normal limits at any rate, does exert a definite tension on the mesentery, and has been described thus as the mechanical grounds if the length of its vertebral attachment is compared with that of the intestinal. Such tension is naturally modified by the support of the abdominal wall, though it cannot be completely controlled when the intestines have free play for their movement. I have already referred to vaso-motor and inhibitory phenomena resulting from inflammatory lesions of and experimental and operative traction on the mesentery. I have also tried to show that such traction may occur from intestinal distension. Thus, the application of these principles in practical surgery has convinced me that this is a factor of considerable importance, and therefore I now propose to apply these considerations to the clinical study of visceral disorders.

The Development and Role of Mesenteric Bands.

In recent years much attention has been focussed upon various mesenteric bands found with considerable frequency in certain situations. Sir James Spence has produced a beautiful diagram of the crystallisation of lines of force in an attempt to support the viscera—a mechanical sequel to the assumption of the upright position. An inflammatory origin has been suggested, but they are too constant in form and position to warrant this view. That these develop as compensatory mechanical conditions in the body of an individual is most unlikely; for Professor Keith has emphasised their existence in the newborn infant, while it is not unusual to find them in varying degrees during operations on quite young children.

The evolution of the large bowel in man from the types found in quadrupeds reveals its gradual fixation in the former as a striking feature. This is as true embryologically as it is phylogenetically, and the fixation takes place by a gradual fusion of the mesentery; it is less complete in some situations than in others. If we regard the present arrangement in man as transitional between that of the quadruped and the final adaptation to the upright position, we should expect to find considerable variation in the extent and method of fixation—for variation in type is one of the marked features of transition. There is clinical evidence to support such a view, for almost every degree of mobility can be observed in man. At the other extreme, and encountered occasional instances of a perfectly free colon with a long mesentery throughout. I have twice encountered this condition, and in one case a little girl of 8 years suffering from acute obstruction of the large bowel. In both cases the variations were found, involving practically the whole of large and small intestine. The appearances were those of nearly the whole intestine supported on a twisted pedicle. When unravelled the arrangement approached that found in the dog.

Such extremes are to be regarded as extreme types of stasis. At the other extreme are the well-fixed colons with complete mesenteric fusion in ascending and descending colon, shortened mesentery to a high-lying transverse colon, shortened and well-fixed cecum, and supported flexures, and a diminished loop to the pelvic colon. Between these extremes are found many transitional types in considerable variation, affecting one or every part of the large intestine. For instance, failure of mesenteric fusion and extreme mobility may affect the cecum and ascending colon only, or together with a loop up to the pelvic colon; or both these may be associated with a pendulous transverse colon.

It is not possible that these bands represent variations in the process of mesenteric fusion and fixation in transitional types, which occasional spurious or anomalous types of fixation may be observed. Again, the very variability in size and anatomical relationships of such bands is evidence of its gradual involution, and I believe this to be true to some extent of the cecum also. For on several occasions I have encountered a cecum involution, enlarged below the ileo-caecal valve and hanging well into the pelvic cavity, in subjects where the mesenteric fusion was elsewhere complete. Such cases would seem to be a reversion to the type of long cecum. The most reasonable view seems to be that such bands are developmental and represent spurious efforts at fixation of the large bowel in transitional types.

Situation.—The commonest varieties have been described by Sir Arl Whitton Lane. The most important may be enumerated—

1. Ileo-pelvic, producing the so-called Lane's kink. This requires no further description.
2. Jackson's membrane, which, attaching the cecum and ascending colon to the lateral abdominal wall by a membranous sheet, sometimes develops additional thickened or constant parts.
3. Gall-bladder, pylorus, and duodenum. All varieties of bands may be found from the fundus, internal aspect, and neck of the gall-bladder; from the first and second parts of the duodenum; and colon to its junction with the proximal and middle third of the

In observing rhythmic contractions of the small intestine in the living subject, when opening the abdomen under spinal anaesthesia, I have been particularly struck with the extraordinarily small calibre maintained by the normal tone of the small intestine—a calibre which is markedly diminished by the rhythmic waves (at least, this is striking in some cases, where the diameter of the bowel appears to be reduced roughly to the size of a slate-pencil). Their function as a means of segmenting and distributing the chyme is well known; but I believe they also serve to maintain constant contractions on the intestinal contents, and when these are accumulated in sufficient bulk (i.e., particularly at the normal areas of delay towards the end of the nodal segments), to elicit that mechanical pressure stimulus which initiates peristalsis and forces the contents into the next nodal area, there to be dealt with in a similar manner.

The rhythmic waves may, perhaps, be regarded as "feelers" thrown out to ascertain the pressure, either of a bolus or collection of fluid contents; and when such a wave contracts upon contents of sufficient bulk it will, by its contraction, elicit the pressure stimulus necessary to excite a peristaltic wave which drives them onwards. These rhythmic waves, normally continuous during life, become accentuated with the physiological stimulation of the vagus, which may be regarded as the key which starts the whole complex mechanism working.

The difficulty experienced by physiologists in exciting the normal secretory and motor functions of the vagus by electrical stimulation leads one to believe that these are normally elicited reflexly by afferent impulses. Thus the sight, smell, and taste of food can initiate vagus impulses, both secretory and motor. Normally appetite is responsible, and this is usually attributed to movements of the stomach. It is difficult to see how movements of the stomach can be responsible for the sensation of appetite, since they are perhaps most marked when the stomach is full and hunger is appeased! It is, at least, not impossible that the engorgement of gastric and pancreatic glands, during the resting period, initiates an afferent vagus stimulus responsible for the sensation of hunger, and eliciting the efferent response to glands, gastric and intestinal muscle. Thus gastric movements would be coincident with, but not responsible for, the sensation of hunger. Such a view would be supported by the increase of hunger during cold weather, when surface vessels are contracted and deep structures proportionately engorged. A somewhat analogous example may perhaps be found in the afferent vagus stimulus provided by the fully oxygenated alveolus of the lung. I think there is clinical evidence in support of this view. In any event, we know that active gastro-intestinal movements and secretions are initiated by such agencies, and that this increased activity extends over the whole intestinal tract, including the large bowel, as clearly demonstrated by Hurst.

In the case of the large bowel, however, the contents being largely semi-solid or solid, the more complex rhythmic mechanism appears to be less striking, and movement of contents more dependent on peristalsis. Here the disappearance of the caecum and appendix as an initial propelling organ is compensated by the development of a well-marked nodal point at the ileo-caecal junction (Keith), which becomes its substitute as "pacemaker" for the ascending colon. Thus the accentuated rhythmic contractions, initiated by the vagus when food is taken into the stomach or through the lumbar centre during defecation, will affect the ascending colon also, and the rhythmic contractions on to semi-solid contents of large bulk will elicit strong peristaltic waves resulting in "mass movement" (the "gastro-colic reflex" of Hurst)—such a process being invigorated at each succeeding nodal segment.

The so-called "antiperistalsis," or backward movement of contents, in the colon may perhaps be explained by ordinary peristaltic contractions evoked by the mechanical stimulus of bulky contents alone, which are too feeble to initiate a mass movement until the accentuation of the mechanical stimulus by the sudden pressure of additional food and an increase in rhythmic contractions. These feeble peristaltic contractions may be sufficient to drive the contents on a little way and allow them to slip back again, thus causing a backward and forward movement until the accentuation of the rhythmic waves initiates a mass movement onwards. Mass movement is also initiated by the act of defecation (Hurst), the accentuated rhythmic waves being started by a reflex stimulation of the parasympathetic through the lumbar centre. It appears that, as we pass over the intestinal tract, the gradual change of the contents from fluid to solid is concomitant with a gradual decrease in the domination of the parasympathetic, a corresponding increase in the domination of the sympathetic (an essential factor in peristalsis), and also by a corresponding decrease in the rapidity of transit—in fact, a gradual approach to the pre-dominating mechanism in herbivora. In other words, there is a varying adjustment between the opposing mechanisms of contraction and inhibition in different parts of the gastro-intestinal tract according to the character of the contents, resulting in the variation in the method and rapidity of distribution and propulsion already noted. Such a gradual reversal of the dominant innervation seems to me to be supported by a consideration of the secretory mechanisms. These are somewhat analogous in this respect: that whereas vagus stimulation is responsible for the initial secretion of gastric and probably pancreatic juice, the continuation of such secretions is mainly chemical. Landon Brown has emphasised the fact that as we descend the alimentary canal the nervous factor in exciting secretion gradually gives way to the domination of the chemical. So that this excitation, initiated as a nervous impulse, is carried on in the stomach by gastric secretin from the pyloric glands (Elkins), in the pancreas by duodenal secretin, excited by the action of gall kinetic chyme on the duodenal prosecretin (Blaxter and Starling), and in the small intestine by the pancreatic secretion and the mechanical stimulation of food particles.

In two or three allied functions (secretory and motor), if the mechanism of one gradually changes to meet food requirements in its different stages, it should not be surprising to find a concomitant reversal in the other.

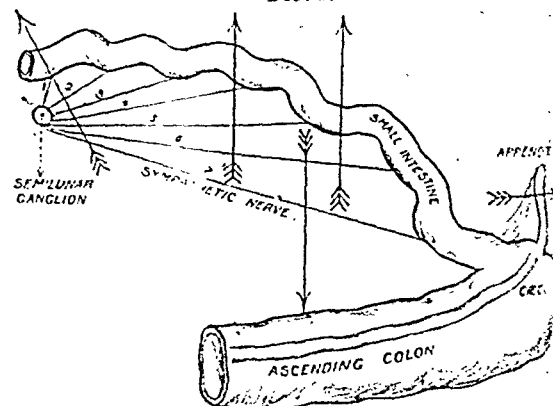
The pre-dominance of the sympathetic or inhibitory innervation and the comparative ease with which its impulses can be excited in the lower portions of the intestinal tract, play, I believe, an important part in the causation of disease.

B. Pathological Derangement of the Normal Intestinal Mechanism.

Lesions of the mesentery.—The difficulty of watching normal intestinal movements in man has been due to the fact that such movements cease immediately the abdomen is opened. This phenomenon has been erroneously attributed to the mere exposure of the viscera to the air. That this is not true is proved by the continuation of such movements when the abdomen is opened under spinal anaesthesia. This proves that the inhibition of intestinal movement on opening the abdomen is due to a reflex sympathetic stimulation, and it occurs even before the abdominal cavity is exposed. This is well illustrated during operations for acute obstruction. During the course of a study into the nature of surgical shock, Dr. Parsons and I made numerous blood pressure observations during abdominal operations in man and animals. We found that while local vascular effects were masked by the dominating centripetal impulses, if these were satisfactorily excluded, local changes could be well studied.

Thus, whether general or spinal anaesthesia was employed, no obvious blood-pressure variations could be attributed to manipulation or crushing the bowel wall—a fact which harmonised with its well-known "insensitiveness." On the other hand, if centripetal impulses were excluded, by operating under spinal anaesthesia, a marked rise of blood pressure arose from manipulation of, or traction on, the mesentery. Such a rise is due to a mechanical stimulation of the efferent sympathetic vaso-constrictor nerves passing through the area involved, and was proportionate to its violence of the stimulus. We found, further, that traction of the mesentery downwards induced a larger rise of blood pressure than upward traction, which indicated (Fig. 3) that the extent of the

FIG. 3.



Numbered nerves stimulated by traction on mesentery in different situations. (Tyrrell Gray and Parsons.)

phenomenon, due to vaso-constriction, was proportionate to the number of efferent fibres mechanically stimulated. Thus the higher up manipulations were carried out, the greater was the blood pressure excursion, until finally the greatest rise of pressure in animals was elicited by mechanical stimulation of the semilunar ganglia themselves. One fact which struck us was the domination of the sympathetic vaso-constrictor fibres in such stimuli, vaso effects being only observed during traction on the cardiac end of the stomach.

I was impressed at that time by the possibility that the phenomenon observed in relation to the blood-vessels might equally well apply to the intestinal muscle, possessing an analogous innervation. Accordingly, a close observation of the effect of operative manipulations under spinal anaesthesia showed that, whereas manipulations of the bowel wall alone inhibited only the tone of the section involved, manipulations of the mesentery inhibited the whole area supplied by the mesenteric nerves so stimulated. As in the case of the blood-vessels, so in the case of the bowel movements, traction downwards will inhibit a wider area than traction upwards, a larger number of nerves being involved (Fig. 3). Finally, traction and manipulation of the upper mesentery inhibits the rest of all the small intestine. We know that intestinal inhibition results from inflammatory lesions of the peritoneum, particularly the mesentery; if the possibility of mechanical stimulation is inhibition be granted, a wide field of surgical study is opened up.

Inflammatory Inhibition.

General peritonitis.—An extreme example of widespread intestinal inhibition from this cause is to be found in general peritonitis. Here the presence of pus constitutes the stimulus to the whole of the mesentery, and provides a constant irritating excitation of the efferent sympathetic fibres to the whole intestine. The so-called "paralytic ileus" resulting is not really paralytic, but due to continuous active inhibition of intestinal movement. It can be regarded as the natural mechanism for insuring immobility and rest to an inflamed and injured structure—one of the fundamental principles to be initiated in the treatment of inflammation.

Here a recognition of the nerve impulses involved could aid the treatment of peritonitis. For, if the active efferent inhibition is persistent as long as the lesion is active is protective in character, such an intestinal immobility is to be resisted and initiated by every means. The resulting efferent stimuli are a source of danger to the centres of the vital centres—their initiation is therefore indicated.

transverse colon; they may pass down to gain attachment to the ascending colon and sometimes the cecum.

4. Membranous attachment of the cæcum and ascending colon to the proximal third of the transverse colon—this being often associated with the preceding type (3).

5. Similar attachment of the bands in this situation.
6. Pelvic mesocolon. The bands in this situation are
Arbuthnot Lane.

The first and last varieties tend, in the most advanced stages, to involve the antimesenteric border of the bowel and produce a longitudinal axis.

There are, further, some rarer anomalies to which to refer in passing.

7. Membranous band anterior abdominal wall in its distal quarter on three or four to the splenic flexure. This I have observed. It is not likely to be associated with a definite prolapse. It is not likely to be seen unless looked for, owing to its remote situation. It is not likely to be seen unless looked for, owing to its remote situation. It is not likely to be seen unless looked for, owing to its remote situation.

"Isolated round bands," occasionally found passing from the gastro-mesocolon anteriorly to the stomach, to the transverse abdominal wall instance such a band passed from the anterior abdominal wall near the diaphragm downwards and backwards to its attachment to the anterior surface of the middle of the stomach, and was associated with an ulcer so far as could be determined. This was quite free, isolated, and smooth, and was associated with long-standing dyspepsia. The scar of two such bands, also present. In another case there were two such bands, thin, tough, and unaccompanied by any sign of local inflammation, passing across the stomach and transverse colon as pulled hepatic omentum. When the transverse colon was pulled downwards both these bands markedly indented the anterior gastric wall, one over the pyloric antrum and the other about two inches to the left. Their removal, together with that of a "controlling appendix," established a cure of somewhat severe gastro-intestinal symptoms of long duration. The operation was performed a year ago. It is difficult to explain the rare existence of these bands; and it is rather tempting to attribute them to pre-natal agencies.

Symptoms Associated with

Gastro-intestinal Symptoms Associated with "Transitional" Bands.

Isopelvic band ("Lane's kink").—Doubt has often been expressed as to its pathological significance, but its association with gastric and duodenal ulcer and with gall-stones is of too frequent occurrence to be ignored. Sir W. Arbuthnot Lane holds the view that the result of such bands is a mechanical obstruction, a view shared by many others. That this may be so occasionally in the extreme examples (when the antimesenteric border of the terminal ileum is fixed to the pelvic brim, and the gut rotated on its long axis) cannot be denied; but that such a view explains ileal stasis in the majority of cases is improbable for several reasons. For instance,—

1. The acute kinking, distortion, matting, &c., of small intestine resulting from peritonitis, trauma, &c., rarely induces any obvious changes under X ray examination.

2. In cases where repeated warnings have culminated in acute small intestine obstruction necessitating urgent laparotomy small intestine examinations have proved of little help. In one such case, however, the examination revealed no definite stasis, when the patient had been operated on for over 20

Small intestine examinations have proved that in previous X-ray examinations revealed no definite signs of previous X-ray examination revealed, lasting for over 20 years after hysterectomy, culminated in acute strangulation of the lower ileum for which I operated. Indeed, this is a common occurrence, and many instances can doubtless be quoted.

3. Even in a partial mechanical obstruction the point to the obstructed point is hypertrophied, while beyond this point it is always collapsed. Careful routine examination has never revealed any such hypertrophy above, or collapse below, the lesion; indeed, the ileum below the "kink" is usually rather "ballooned."

4. Also with delay in the caecum and ascending colon (as demonstrated by X rays) even when the appendix is healthy. In extreme cases the bismuth may remain in considerable quantity in the caecum and ascending colon after the rest of the intestines are entirely clear. This cannot be explained by partial mechanical obstruction.

5. Congenital inversion of the caecum.—This condition is infrequently encountered, the caecum (usually of the infantile type) lying external to the ascending colon. In the extreme examples part or nearly all of the ascending colon is involved in the inversion. In such cases the terminal ileum reaches the caecum by the ascending more or less retroperitoneal and passing behind the ascending colon. I have twice encountered this condition in the extreme form and both were instructive. In one case, F., aged 35, almost the whole ascending colon was inverted, the terminal ileum being firmly embedded behind the colon in its course to the caecum. Previous X-ray examination showed marked ileal stasis. In the other, M., aged 51, repeated attacks of partial obstruction led to surgery. Dr. A. C. Jordan had previously demonstrated at operation the anomaly, which was confirmed at the following case.

other, M. A. C. Jordan had previously been confirmed at operation laparotomy. Dr. A. C. Jordan had confirmed the preceding case. In the inversion of the caecum, which was confirmed at operation, an extreme instance, closely resembling the preceding case. Behind his case the ileum, proximal to its retroperitoneal passage behind the colon, showed the marked hypertrophy and dilatation associated with chronic or intermittent obstruction. But in this case no ileal stasis what-ever was demonstrated by X rays.

The normal feature at the sigmoid flexure, hepatic and splenic flexures, and ascending colon

6 Some kinking of the bowel is a normal feature. It is not a sign of obstruction. It is associated with points of support, diaphragmatic flexure, hepatic and splenic flexures, and is not necessarily associated with any pathological flexures, and is not necessarily associated with any pathological flexures, and is not necessarily associated with any pathological flexures.

(Clinical study of Lane's kink seems to show: (a) that "mechanical stress" is not due to mechanical obstruction; (b) that mechanical obstruction must be all but complete before it can be demonstrated with certainty by X-ray.

(1) In the upright position the terminal ileum leads down to the pelvis, and the mesentery can be definitely shown to be stretched in this position. The bowel thus induces a tension on the mesentery in this situation, and mechanically irritates the efferent sympathetic nerves distributed to the ileo-caecal region, thus inhibiting their normal rhythmic and peristaltic contractions and accentuating the normal ileal delay. (Fig. 4.) Together with this inhibition

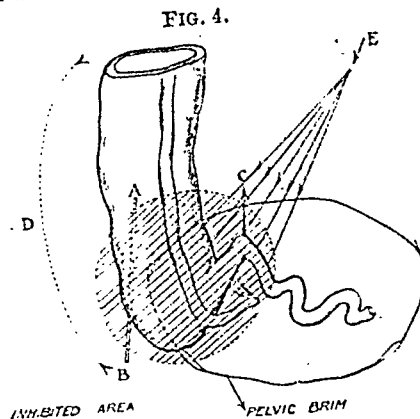


Diagram of efferent ileo-caecal inhibition. A-B, Opening in peritoneum for cecopyexy. C, Pull on mesentery by Lane's kick. D, Area inhibited directly by secondary inhibition of ileo-caecal nodal point. E, Lines of stress on efferent mesenteric sympathetic fibres.

there is also a concomitant spasm of the ileo-caecal sphincter (Elliott). Such an efferent sympathetic stimulus will further inhibit the *ileo-caecal nodal point of Keith* and thus derange the "pace-maker" for the ascending colon; thereby causing a pronounced delay at this segment already referred to, by a diminished association of the rhythmic waves leading to delayed excitation of the stalsis. This is analogous to the inflammatory inhibition referred to in acute appendicitis. The possible criticism that such a stimulus to the vagus fibres does not hold for three reasons: (a) The difficulty experienced by physiologists in stimulating the vagus in its efferent course; (b) the increasing domination of the sympathetic, already referred to, as we pass down the intestine; and (c) such sympathetic domination was shown in this respect by Dr. Parsons and myself so far as it affected the vaso-motor system.

(2) Such an inhibition of the ileo-caecal angle may possibly be excited by the peristaltic wave itself. I once had the opportunity of watching an intussusception form in a loop of bowel in my hand, when operating on an infant for this condition under general anaesthesia. The extraordinary degree of ballooning of the inhibited segment preceding the contraction was a striking feature.

I have endeavoured to show that extreme distension will stretch the mesentery—is it not possible that, in the presence of such a “kink,” on the arrival of a peristaltic wave at the area of the inhibited segment preceding the contraction, the sympathetic nerves shortened mesenterically, the widely inhibited segment may by its distension produce the drag on the sympathetic nerves that stimulates them to excite inhibition of the bowel? Even if such inhibition is slight or partial it would tend to become progressive. Further, observations during operation have confirmed this inhibitory view. For I have noticed carefully that if the bowel is greatly drawn upon in the neighbourhood of a Lane’s kink, so as to put it on the stretch, the terminal ileum becomes definitely ballooned, and the caecum also gets distended.

[illegible]

The "controlling appendix"—I have always regarded such an appendix as one which, either by itself or through the mechanism of adhesions to the ileal mesentery, is capable of inducing a reflex inhibitory stimulus. The mechanism of the Lane's kink at the "controlling appendix" may be thus regarded as one and the same—i.e., inhibitory to the normal "myenteric reflex" in the terminal ileum and the cecum. It is clear that if the healthy terminal appendix still retains some of its primitive function as a "propulsive organ," the contractions one not only loses such a function, but actually interfere with the peristaltic and nerval mechanism of propulsion. There is thus a very simple explanation of the relief constipation and dyspepsia in many cases where an appendectomy showing little disease has been removed—i.e., the release of the normal myenteric drug occurring during movements of the intestine.

Pelvic mesocolon.—The explanation of the pathological significance of these bands is entirely analogous to that of the ileo-colic. I have never been able to observe kinking sufficient to obstruct through their agency, and I cannot but regard their mechanism as purely inhibitory to the normal contractions of pelvic colon. Such a view will account for at least one aspect of dyschezia; for the initial act of defaecation, starting the movements of the colon, will result in tension on the pelvic mesocolon by the bands, and an inhibition of the completion of the act.

Jackson's membrane, chole-duodeno-colic bands.—The mechanism of these I believe to be largely mechanical, since they are usually unattached to the mesentery proper.

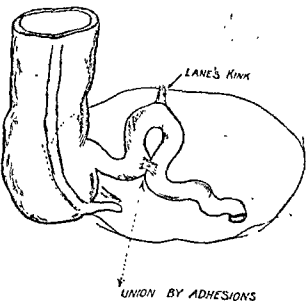
Surgical treatment.—In the treatment and after-results lies such practical proof as I am able to adduce in support of these views. The simple division of such bands obviously invites recurrence or worse. I have, therefore, for many years consistently practised free transverso division (until the bowel is quite free) with a suture of the raw surfaces longitudinally—i.e., a plastic lengthening of the mesentery of the simplest type. The numerous instances in which this has been done as a routine during the course of another operation could clearly afford little proof. I have therefore endeavoured to trace some of those cases where the routine removal of an apparently normal appendix cannot have been of influence, and nothing further beyond a plastic lengthening of such bands was done. I have found 23 such cases, where, so far as I could determine, there was nothing else abnormal in the abdomen. In 20 of these the terminal ileum was involved, and in 3 the pelvic mesocolon.

Ileo-pelvic cases.—The symptoms complained of were: flatulence, distension, and indigestion in 8 cases; "water brush" or "heart-burn" in 2; biliousness and lassitude in 2. Pain was a prominent symptom in 10 cases; the pain was general or right-sided in 8, was a prominent feature in 9 cases. In one of them it is described as "markedly progressive" (this case was cured 5-6 years afterwards). It was absent in 6 cases. The results of this simple operation apply to periods of one to eight years afterwards. From 8 I have been unable to get any reply, though one of them had some flatulence three months after operation. Of the 12 cases who have replied to my inquiries, 10 describe themselves as an unqualified cure; one as a cure with occasional discomfort; one as much relieved. These figures, few as they are, represent at least 83 per cent. of cures from this simple procedure. In only one of these cases was the raw surface so large that an omental graft was used to cover it up.

In support of the benefit of this operation may be quoted one case from a different aspect—namely, that of a man, aged 31, whom I operated upon for acute appendicitis in 1912. At the time of the appendicectomy a marked "Lane's kink" was noted, but was not released owing to sepsis. This patient writes me that he has no return of his acute symptoms, but suffers from indigestion, for which he has been treated.

There is one interesting anatomical feature in extreme cases—namely, that the two limbs of the tethered intestine occasionally become adherent to each other at about 12 inches from the kink, thus transforming a U into an O. (Fig. 5.) This condition I have

FIG. 5.



encountered on at least two occasions. Even here there was no evidence of hypertrophy on the proximal or collapse on the distal side of the lesion.

Pelvic mesocolon.—The two cases which I have been able to trace 18 months and six years respectively after a plastic lengthening of the meso-sigmoid are of sufficient interest to justify a separate report of each.

(a) F., aged 21. A finely built, well-nourished, athletic girl, complaining of obstinate constipation, indigestion, "flatulence," and a sense of great distension, for which she had received treatment. Some bands from the transverse mesocolon to the neighbourhood of the cystic duct were divided transversely and sutured longitudinally; but, though this may have influenced her flatulence, I did not think it could have exerted much influence on her constipation. There was no visceropostosis. The most marked feature was the aggravated form of the "sigmoid" bands. These were divided transversely and sutured longitudinally. An apparently normal appendix was removed. This girl is now "absolutely and entirely well" 18 months later.

(b) F., aged 17. This girl was sallow, thin, and unhealthy-looking, and complained of obstinate constipation; the bowels were often

not opened for ten days at a time. On exploration the cecum was slightly pendulous but was not sutured. An apparently normal appendix was removed, and there was, so far as I could determine, no other abnormality in the abdomen except extraordinarily pronounced "sigmoid" bands. On dividing these transversely a large raw surface (about the size of the palm of the hand) was left, which extended well on to the lateral wall. I could not help being struck with the tension which must have been exerted by these bands, when their release left such a large gap that I could not close it by any plastic method. In this case I covered the raw surface with an omental graft. Before she was allowed up the bowels acted easily and regularly. The patient wrote to me she died "from other causes" last March; but that for the six years after her operation (until her death) the procedure had proved "entirely successful."

It can hardly be denied that in these cases the bands described were exerting pathological effects. Further, I am fully aware of the fact that the removal of the bands is associated with, and bearing such possibilities in mind, I am unable to attribute the cure in the cases I have quoted to any other agency than the lengthening of the contracted mesentery. If I have succeeded in showing that their pathological effect on intestinal motor function is very rarely mechanical, it must be nervous or inhibitory in character. Even if the normal effect of an band is to exert by so simple a procedure as plastic lengthening, does not this constitute indirect evidence that the mere traction exerted on the intestinal mesentery can stimulate intestinal inhibition?

Experimentally I have repeatedly tried to produce such stasis by kinking and distending the mesentery in animals; but I never succeeded. Also, it is curious to note that stasis associated with such bands is only to be observed from the lower ileum downwards. If the inhibitory view of stasis is accepted does not this support my conception of the increasing domination of the sympathetic, as opposed to the parasympathetic, as we pass down the intestine? Sir Arbuthnot Lane was the first to suggest that the predominant influence of the colon in visceral disorders, and to suggest that it should be attributed the stimulus to investigation in recent years. But this increased susceptibility of the terminal ileum and large intestine to mechanical nervous efferent inhibition constitutes, I believe, the main reason why these parts of the alimentary canal are so often the seat of primary factors in the gastro-intestinal disorders. A study of intestinal inhibition, however, is naturally not confined to its association with mesenteric bands. Having endeavoured to establish a principle I am anxious to enlarge my study by its application to visceral prolapse.

Disorders Associated with Inhibition of the Colon.

True visceropostosis, or Glénard's disease, is characterised by a prolapse of the viscera associated with a laxity of, and deficient support afforded by, the abdominal wall, including the pelvic floor. In a great many cases such prolapse involves all the abdominal organs. The symptoms often described are familiar to all, but much of the obscurity in regard to their aetiology has arisen from the difficulty of discriminating between cause and effect, on the one hand, and from the erroneous impression that actual position in the abdomen can in itself influence intestinal function. That visceropostosis is frequently associated with a profound stasis and its distressing sequelae is common knowledge; but it is an everyday experience to find this condition pronounced in people who are in the most perfect health.

I believe the various degrees of prolapse to represent variations in a gradual transition from the type found in quadrupeds to the final position in accommodation to the posture altering food requirements, and so forth; and that the condition is in no way to be regarded as pathological. Subjects with a mobile colon, however, are definitely more liable to visceral disorders, and such anomalies should be regarded as a predisposing factor.

For a true appreciation of the pathological position of the various forms of prolapse there are two distinct factors to be realised:

(a) Predisposing conditions; (b) true stasis.

(a) Predisposition consists in the various degrees of congenital mobility and prolapse of the large bowel which invite a derangement of mechanism if a sufficiently powerful aetiological factor should supervene. In the absence of such an aetiological factor the condition is compatible, as we know, with perfect health; and I repeat there is no satisfactory evidence that prolapse of the stomach, transverse colon, or cecum, &c., is in itself regarded as pathological. It is everyone's experience that this condition, even in exaggerated form, can be unaccompanied by any symptoms whatever. The most recent case under my observation was that of a girl of 25 years, perfectly healthy until after her first baby was born two years ago. Since that time she has complained of pain, becoming gradually unbearable, in the right side after standing or walking for any length of time. X-ray examination reveals an extreme degree of splinocephoposis. But the point I wish to emphasise is that though there is a caustic stasis, so extreme as to simulate partial obstruction, together with a marked increase of peristaltic waves over a prolonged period of at least nine hours this patient has never had a symptom of constipation, dyspepsia, flatulence, or epigastric discomfort. Though the abdominal wall is appreciably protruded, all the abdominal organs are normal, it seems clear that, provided the abdominal wall remains compatible with perfect health for 23 years, the aetiological factor in the onset of symptoms was the alteration of the abdominal wall and pelvic floor after childbirth.

(b) Aetiological factors.—Abdominal and pelvic support. In the case of abdominal distension, and in the case of visceropostosis, it is not so pathological, and exemplify the view that small provocation, which would be without influence in a subject with a well-attached colon. That the abdominal wall and pelvic floor are important factors is certain. At least one of my cases on whom I have performed a caesarean section remained perfectly well for a year, when symptoms gradually recurred after childbirth. This case is instructive and will be studied later. But the abdominal wall can alone be responsible for the distressing train of symptoms associated with some extreme instances of prolapse cannot, I submit, be adequately supported by evidence, as I hope to show, though it certainly can influence the condition. There are numbers of multiparae, for instance, with marked visceropostosis and poor

abdominal walls who have hardly a complaint; while, on the other side of the picture, we see numerous instances of unmarried girls with well-developed abdominal muscles complaining of severe and progressive symptoms.

Intestinal inhibition.—Numerous explanations have been given to account for the marked stasis often associated with prolapse. None of them are satisfactory. That the driving power of the colon is impaired is a postulate—how it is impaired is the problem. That mechanical obstruction occurs through kinking of the lumen is, I submit, quite an untenable hypothesis for many reasons:—

(1) Such a mechanical obstruction should produce hypertrophy on the proximal side. This is never seen; on the contrary, the bowel becomes very thin and ultimately inelastic. (This feature further negatives any possibility that the cause of stasis is primarily due to stretching of the intestinal muscle by bulk of contents, &c., for the normal intestine responds to increased work by hypertrophy.)

(2) The most marked kinks at hepatic and splenic flexures are often seen in those with a well-supported colon when there is no stasis at all. Some of the most acute flexures I have seen in a considerable number of personal observations under X rays, have been in people who had no stasis or constipation—and I have repeatedly verified this at operations. Recently such an extreme kinking at the splenic flexure was observed in a patient, in whom all the bismuth was evacuated within 24 hours. At a subsequent operation I found the X ray observations verified; and the two limbs of the splenic flexure were firmly united over a considerable distance, thus accentuating the kink.

(3) It is a most significant feature that, when the normal flexures of the alimentary canal are supported by ligamentous attachments, these are invariably attached to the bowel wall and never to the mesentery.

Such reasoning led me to the conviction that the normal support to the colon should be provided by attachment to the bowel itself, the object being clearly to leave the mesentery a free and mobile conductor of the vessels and nerves regulating the nutrition and movements. When the strain of support is taken by the mesentery, nerves (both efferent and afferent) are stimulated mechanically, the result being a disarrangement of the nervous impulses responsible for the normal intestinal contractions. If the bowel muscle is progressively prevented from contracting, then (and then only) will continuous stretching further impair its muscular action. Is it not reasonable to infer that active muscular inhibition may be the primary aetiological factor in many of these thin-walled, lax colons? The gradual domination of the sympathetic associated with an approach to the more primitive mechanism of peristalsis has been referred to in contrasting the mechanism of the colon with that of the small intestine. The ease with which sympathetic efferent effects can be evoked experimentally have also been emphasised. Once more, then, I am convinced that viscerospasm is innocuous until the strain of support is taken by the mesentery. Such increased traction initiates active inhibition, leading to overloading; while this again increases the mesenteric strain, accentuates the inhibitory impulses, and so the vicious circle is established. Thus a controlling appendix, Lane's kink, relaxation of normal abdominal support, constipation from any cause, may be the primary factor in overloading the bowel, increasing the mesenteric strain, and initiating the symptoms so often associated with viscerospasm.

In a word, the predisposing factor is viscerospasm, probably arising from: (a) deficient abdominal and pelvic support to a normal bowel; (b) any cause of overloading of the bowel when the abdominal wall is efficient; and (c) both (a) and (b) acting together. These factors start a progressive vicious circle.

The extent to which this conception is supported by the results of practical surgery forms the next part of my study, embodying a detailed analysis of 196 cases under my care during the last seven or eight years. This number represents that proportion in which I could obtain the data required for analysis. Of these 85.3 per cent. were females, and only 13.7 per cent. males. I have excluded children from this study, with the exception of three cases of unusual interest, aged 15, 10, and 8 years respectively.

Cases Not Operated on.

A brief review of these is instructive for comparative purposes, and also to show that, even when not always apparent, the abdominal wall may be partly at fault. Apart from general hygienic measures palliative treatment has, in the main, been directed towards preventing overloading of the bowel, and providing adequate support of the abdominal wall by belts and corsets. Usually for the last eight or nine years I have had corsets made with the plate fixed internally, and adjusted, after the corsets are applied, by outside strap supports. This has proved the most satisfactory and comfortable, though considerable patience in repeated alterations is often necessary.

Of the 53 cases not operated on, 23.8 per cent. are cured; 57 per cent. are relieved, and in 19 per cent. treatment gave no improvement. To the failures must be added two more cases whose symptoms got worse rapidly. One has been recently operated upon, and the other awaits operation. In two cases the replies were too vague, and 15 did not reply at all.

One particularly interesting feature is the number of these patients suffering from frequency of micturition when nothing pathological in the urine was ascertained. In the whole series this symptom was present in 35.5 per cent., of whom 50 per cent. complained of frequency by day only. I have regarded it as due sometimes to congestion of a right kidney when dragged on by a mobile caecum and ascending colon (Fig. 6), sometimes as due to the weight of a loaded transverse colon on the bladder. (I have been led to regard this symptom as possibly of importance in the prognosis of palliative treatment; for in this series six complained of it and only one was cured. Of those who ultimately came to operation this symptom was present in 23 cases, of whom a good proportion were cured.)

In 62.5 per cent. pain was a prominent feature (10 cases). Of these relief was afforded by treatment when the pain was in acute

attacks or left-sided. No cases were cured who complained of dragging right-sided pain, though all were relieved to some extent by the treatment and corsets. The results from cases (50 per cent.) where constipation had been a prominent symptom did not differ appreciably from the results where constipation had not been a feature. Indigestion, flatulence, nausea, distension, &c., was complained of in 50 per cent. also; and of these 20 per cent. were cured and 65 per cent. relieved.

Though these figures are of limited value from the small number of cases traced, yet they support my previous impressions. For the small proportion cured and large proportion improved illustrates the fact that the abdominal wall, though an important factor, only plays an accessory part in the later cycle of events.

FIG. 6.

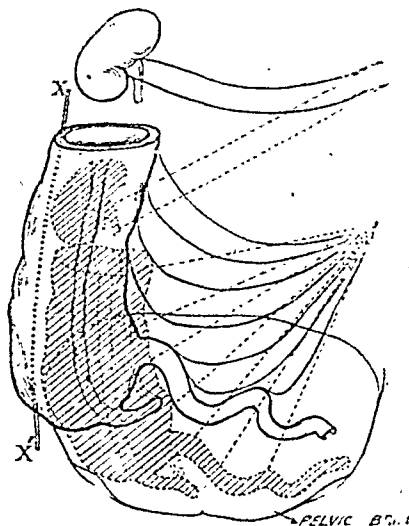


Diagram of efferent sympathetic inhibition to illustrate prolapse of the caecum and ascending colon and resulting tension on nerve fibres. Continuous line, normal position with no tension on efferent nerves. Dotted line, prolapse associated with strain on mesenteric efferent sympathetic nerve fibres.

The other feature of interest is that the wearying dragging pain in the right side (so often erroneously attributed to mobile kidney, but really due primarily to a mobile caecum and ascending colon) was not cured in any case, though it was improved in all. Not included in this series there is also a case in which nephropexy was performed at another hospital for this symptom with no relief. Complete cure was effected by the corsets, which are, however, indispensable. In another instance I performed nephropexy for acute renal crises with commencing intermittent hydronephrosis. This patient was completely cured of the acute renal symptoms, but for 18 months complained of a wearying dragging right-sided pain, for which I had to perform a colopexy.

A study of my cases shows that nephropexy is only justified as a measure directed against torsion of the renal pedicle (or excessive mobility, which may make this possible), and never for descent of the kidney associated with right-sided dragging pain alone. In the latter class, if proper corsets fail to give relief, operation should be directed towards fixing a mobile caecum and ascending colon, which is primarily responsible for the mobility of the kidney.

Finally, even if failure of the abdominal wall and pelvic floor only plays a limited part in starting a drag which leads to local or general intestinal inhibition, it is evident that if such a failure is corrected by corsets early, and the resulting inhibition eliminated before secondary factors are established, a definite cure may be achieved. This is shown by 23.8 per cent. of cures in cases not operated on; and further, by the cure of 18.7 per cent. in those who gave a history of constipation as a prominent symptom. At the same time most of the cases not operated on were of an earlier and milder type than those now to be considered.

(To be concluded.)

DONATIONS AND BEQUESTS.—By the will of the late Mr. Charles Adolph Heimann, of Sussex Gardens, Raywater, W., the testator left £2000 to the University College Hospital, to endow two beds in memory of his late wife, Florence Emily Heimann; £1000 to the University College School, for general purposes; and £1000 each to the Hospital for Sick Children, Great Ormond-street, the Paddington Green Children's Hospital, St. Mary's Hospital, Paddington, to endow beds; Queen Charlotte's Lying-in Hospital, for general purposes; and Lord Mayor Treloar's Cripples' Home, to endow beds; and £500 to the Italian Hospital, London.

SOME OBSERVATIONS ON THE INVESTIGATION AND TREATMENT OF NEPHRITIS.

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WITHIN recent years various tests for the examination of patients suffering from kidney disease have been suggested, but in many cases the interpretation of these tests is still unsatisfactory, and it is quite certain that many of them are of little or no practical value. In considering the importance to be attached to any test, it is essential to have a clear understanding as to the particular defect of renal function present in the different forms of renal disease. In chronic nephritis there are two distinct conditions which stand out clearly and are exceedingly well defined by chemical investigation.

The Functions of the Kidney.

Normally, the kidney performs certain specific functions, which may be summarised as follows: (1) Removal of waste nitrogenous constituents of metabolism, such as urea, uric acid, creatinin, &c.; (2) removal of acid products from the body; (3) maintenance of the necessary concentration of salts in the fluids and tissues.

In chronic interstitial nephritis there is in severe cases a definite retention of nitrogenous waste products in the blood, and this condition is associated with a diminution in the acid-excreting function of the kidney. In parenchymatous nephritis, on the other hand, there is no evidence of any retention of nitrogenous products or of failure to eliminate acid bodies, but there is often a definite failure to excrete the normal amount of salt.

In severe cases of acute disease all these phenomena may be present together, indicating a general interference with all the renal functions, but as convalescence progresses it often happens that there is a definite retention of nitrogenous waste products in some cases, while in others there is evidence of difficulty in the elimination of salt.

Defective excretion of nitrogen naturally causes an increased concentration of such bodies as urea and uric acid in the blood. Within comparatively wide limits it would appear that marked differences in the amount of these bodies in the blood does not interfere to any appreciable extent with ordinary cellular activity. On the other hand, it is most important to remember that any appreciable change in the concentration of sodium chloride in the blood is incompatible with life. It might therefore appear that any condition in which the kidneys failed to excrete sodium chloride would be one of the most serious of renal lesions, since it might tend to give rise to a fatal concentration of sodium chloride in the body. Normally, blood plasma and other body fluids contain, roughly, about 0.6 per cent. sodium chloride, and only slight variations from this figure are encountered even in patients who excrete practically no salt in the urine. When sodium chloride is retained it must be present in the body in definite concentration, and to accomplish this the body retains the necessary amount of water to yield this concentration. If much salt is retained a correspondingly large amount of water must be retained, with the result that oedema is produced. Generally speaking, each 0.6 g. sodium chloride retained requires 100 c.cm. of water. It is obvious that the same result will be produced whether the primary defect in the kidney is the elimination of salt or of water. If water is not eliminated its retention in the body tends to lower the salt concentration, and this is prevented by the retention of the necessary amount of salt to give the optimum concentration for the tissues. Salt can only be retained in the body when water is also retained and vice versa.

In parenchymatous nephritis the chief difficulty appears to be the excretion of the necessary amount of salt or of water. This results in the production of oedema, which is the most characteristic feature of the parenchymatous variety of renal disease. Strangely enough, the kidneys of such patients appear to be quite efficient in other directions, and so differ entirely from the kidneys of interstitial disease. Parenchymatous disease with marked oedema is always associated with the presence of a very large amount of protein in the urine, and consequently marked albuminuria and oedema are two of the most important symptoms in such cases.

In interstitial nephritis the picture is quite different. Here there is defective elimination of waste nitrogenous products and acid bodies, but no difficulty in dealing with salt. Hence, in typical cases, there is little or no tendency to oedema. The cardio-vascular system is involved. The urine often contains but a small amount of protein, and sometimes, even in bad cases, no protein at all can be found by the most delicate tests. Sometimes the symptoms of both parenchymatous and interstitial disease are present in the same patient, but more often very definite findings of one or other variety of the disease may be obtained.

While from clinical examination alone it may occasionally be difficult or impossible to differentiate these varieties, it is always possible to do so by chemical examination. A clear conception of the points involved is absolutely essential, for on this differentiation must be based any intelligent treatment of chronic nephritis.

The Difference between Interstitial and Parenchymatous Nephritis.

The chief points of difference between these two forms of renal disease are as follows:—

<i>Interstitial Nephritis.</i>	<i>Parenchymatous Nephritis.</i>
(1) Oedema absent.	Oedema present.
(2) Protein present in urine, but often slight or moderate in amount.	Protein present often in very large amount.
(3) Chlorides present in normal amount.	Chlorides diminished or may be absent.
(4) Urea concentration (urinary) decreased.	Urea concentration normal.
(5) Tendency to increase of urea and other nitrogenous products in the blood.	No retention of nitrogenous products in the blood.
(6) Cardio-vascular changes marked.	Cardio-vascular changes less marked.
(7) Tendency to uræmia.	Uræmia less frequent.

Parenchymatous nephritis.—In cases of uncomplicated parenchymatous disease, as already mentioned, the chief defect apparent on chemical examination is a difficulty in excreting salt. In certain cases sodium chloride may be entirely absent from the urine, while in others only traces may be present. It is no longer a simple process to ascertain the salt-excreting power of the kidneys, for the renal plan of giving 10 g. or more of sodium chloride by mouth and estimating the amount of this excreted in the urine is open to grave objections. Even in the normal individual a considerable amount of salt may be retained in the tissues, and it is only after repeated doses of salt given for several days that equilibrium is established and the kidneys excrete per day an amount equivalent to that taken in. In patients who are defective in the power of eliminating salt equilibrium is not established, with the result that marked and increasing oedema is produced. Even in doubtful cases, and in wards testing of the kidneys for salt excretion is a difficult and laborious process, while in patients seen only for a short time it is quite impossible. Practically, however, such tests are not required, for in patients in whom salt is retained to any appreciable extent the condition is obvious because of the resulting oedema. If no oedema is present it may be taken for granted that salt is retained. In uncomplicated cases of parenchymatous disease the majority of the other tests used for estimation of kidney function give little or no information, since the results obtained are generally normal.

Interstitial nephritis.—The majority of cases of kidney disease belong not to the parenchymatous but to the interstitial type. Here careful investigation of kidney function is necessary, and most useful information is obtained by judicious examination. It may here be pointed out that the gravity of the case is in no way necessarily related to the amount of protein present; as is well known, very severe cases may on some occasions show no albuminuria whatever, even when tested by the most delicate methods. Again, it has now been thoroughly established that albuminuria per se is not necessarily an indication of renal disease, and may be present in individuals whose kidney function is apparently quite normal. In healthy soldiers who had just completed their training MacLean found albumin in the morning urine in about 6 per cent. None of these men appeared to be suffering from defective kidney function. Further, it is possible for epithelial and hyaline casts to be present without any material or even appreciable kidney defect, so that in the absence of other symptoms the presence of albuminuria, and even of casts, is not necessarily of much value in assessing the degree of renal inefficiency involved. No doubt, in a general way, well-marked albuminuria associated with large

numbers of casts often indicates that the lesion is more or less considerable, but it is quite certain that in some cases this is not so. On the other hand, the presence of a mere trace of albumin, with few or many casts, may be associated with a very gross lesion. In spite of these qualifications the urine must in all cases be carefully examined for protein and casts.

Tests for Protein and Casts and Functional Tests.

By far the best and simplest test for protein is salicyl-sulphonic acid.

A suitable solution consists of 25 g. of the acid in 100 c.cm. water. A stronger solution may be used if desired. In testing a few drops of the solution are added to about $\frac{1}{2}$ inch of urine in a test-tube. In the presence of much protein a dense white precipitate is obtained; if a small amount only is present a definite milkiness is produced, while in the presence of traces of protein a faint opalescence is obtained. The test is exceedingly delicate, and a urine in which no reaction takes place may be assumed with certainty to be protein free.

Cast should be looked for after centrifuging the urine. The only point to emphasise is the necessity for using as small a diaphragm as possible, for if this is neglected certain fine casts may be easily missed. The most suitable lens is an ordinary $\frac{1}{2}$ objective with No. 3 or No. 4 eye-piece. A mechanical stage is useful if large numbers of specimens are to be examined.

After examining the urine for protein and casts, various tests may be employed for ascertaining the degree of involvement of the renal tissue. From an extensive experience of these tests we are of the opinion that the most useful for clinical purposes are the following: (1) Estimation of urea in the blood; (2) new "urea concentration test" (MacLean and de Wesselow²); (3) diastatic activity of urine.

Importance of Blood Urea.

The amount of urea in the blood of healthy individuals varies from about 15 to 40 mg. per 100 c.cm. An average figure in hospital patients with normal kidneys is, in our experience, from 20 to 30 mg. Anything over 40 may be taken as abnormally high.

When the kidney is unable to perform its normal work of excreting urea there is naturally an increase of urea in the blood. It is important to observe that even in very severe cases of nephritis the amount of urea excreted per day in the urine is the same as that of a normal individual on a similar diet, the difference between the two cases being that the patient with interstitial nephritis requires a much higher concentration of urea in the blood in order to accomplish this. If we look on the blood urea as a kind of pressure head we find that the healthy individual excretes his 25 or 30 g. of urea per diem with a head of, say, 25 mg. urea per 100 c.cm. blood, while the nephritic is only able to do this with a much larger head of blood urea; in bad cases this blood urea may be 200 to 300 mg. per 100 c.cm. blood, or even more. Thus, the concentration of blood urea is an excellent indication of the efficiency of the kidneys, for the worse the renal lesion the higher will be the blood urea. The kidneys comprise such a large mass of functionally active material that only from one-fourth to one-sixth of this is really necessary to carry out the body needs. It is, therefore, only in cases in which the kidney efficiency is reduced to one-fourth or less of its original value that there is any tendency for excess of urea to be retained in the blood. When this happens other substances, such as uric acid and creatinin, are also retained and accumulate in the blood. All these nitrogenous substances taken collectively are often referred to as constituting the "non-protein nitrogen" moiety of the blood. The amount of non-protein nitrogen present may, of course, be ascertained, and this is sometimes done in estimating kidney efficiency, but it is much easier to estimate the urea constituent alone. Since the urea concentration runs parallel in a general way with that of the other nitrogenous substances, this estimation gives all the information necessary.

From the above it will be seen that estimation of urea in the blood gives most valuable information, for when this ingredient is appreciably increased it is certain that the effective kidney tissue remaining is equivalent to less than one-fourth of the total kidney substance. In the great majority of cases of interstitial nephritis there is by no means such a marked involvement of kidney function, and therefore no evidence of increased blood urea. In bad acute cases estimation of blood urea gives invaluable information as to the course of the disease, for a progressive lesion is accompanied by a steadily increasing urea concentration, while a decreasing concentration indicates a good prognosis. In such cases it is advisable to examine the blood for urea at short intervals, for the blood urea constitutes a much safer guide than do the clinical symptoms; in fact, the latter may be quite deceptive, the condition of the patient appearing to be satisfactory in cases that terminate fatally within a week or ten days.

Estimation of Blood Urea.

The estimation of the blood urea is carried out on the lines suggested by Marshall,³ Van Slyke,⁴ and many others. The modifications here described were suggested by MacLean and de Wesselow,² and have been found to work well.

The principle of the method depends on the fact that soya bean contains a specific enzyme (urease) which converts urea quantitatively into ammonium carbonate, but has no effect whatever on any other nitrogenous constituent. In the presence of alkali ammonia is liberated from the ammonium carbonate, and with the help of a current of air is passed through a standard solution of acid. The amount of acid neutralised indicates the amount of ammonia present, and from this the urea can be calculated. Various preparations of urease, more or less pure, are now on the market, but they all suffer from the disadvantage that they are unstable, and therefore soon become unreliable. For clinical work it is far better to use finely ground soya bean meal; this can be prepared by passing the beans through a coffee machine, and it keeps indefinitely. For each experiment 0.3 g. of this meal is used, and since it contains traces of ammonia a small allowance has to be made. In various specimens 0.3 g. of the meal neutralised almost exactly 0.4 c.cm. N/100 sulphuric acid. This has to be subtracted from the total amount of acid neutralised in the actual experiment.

The estimation is carried out by means of tubes (K), fitted as shown in Fig. 1.

These tubes should be about 200 mm. deep and about 25 mm. wide. Each tube has a well-fitting rubber cork. Through this cork two small tubes pass. One of these (N, Fig. 1) has a small dilatation at the end, which is perforated with several small holes. This tube goes to the bottom of the larger tube (A). Through the other hole passes a tube (B) with a dilatation, which acts as a trap to prevent any fluid passing over. Two such large tubes are required for each estimation. To each of the small tubes passing through the rubber stopper is attached about 1 foot of ordinary stethoscope rubber tubing (P). For the accurate measurement of the blood it is best to have a special pipette made "to contain" 3 c.cm.

The materials required to carry out the estimation are as follows:—

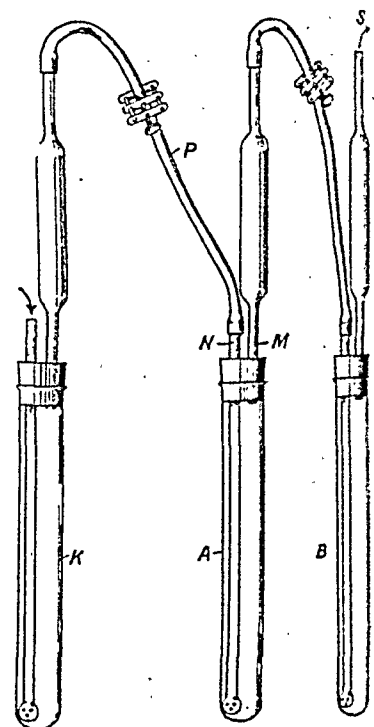
(1) A solution containing 6g. potassium hydrogen phosphate in 1000 c.cm. water. (2) Soya bean meal. (3) Caprylic alcohol (to prevent frothing). (4) N/100 H_2SO_4 and N/100 NaOH. (5) A saturated solution of methyl red in 50 per cent. alcohol (indicator). (6) Solid anhydrous potassium carbonate. (7) Saturated solution of potassium carbonate. (8) 2 x 25 c.cm. burettes accurately graduated in 1/100 c.cm. (9) A pipette made to contain 3 c.cm. blood (made by Hawksley and Son, Oxford-street, W.). (10) A good water suction pump.

Method of obtaining blood.—About 10 c.cm. or less of blood is withdrawn from a vein at the bend of the elbow into a test-tube, coagulation being prevented by the use of a small amount of finely powdered potassium oxalate. The tube into which the blood is drawn must be inverted a few times to mix the solid oxalate thoroughly with the blood, otherwise coagulation may take place.

Details of Actual Estimation of Urea.

Two tubes, fitted as above described (see Fig. 1), are taken and adjusted so that the perforated inner tube (N) with the small holes passes to the bottom of the outer tube. One of these tubes is used for the blood, while the other serves to contain the acid required for estimating the ammonia. The rubber corks and attachments are then removed and 5 c.cm. of acid sodium phosphate solution are measured into the urea tube. By means of the special pipette 3 c.cm. of blood are added to the phosphate, the pipette being thoroughly washed out two or three times with the phosphate

Fig. 1.—Tubes for Estimation of Blood Urea.



K. Contains 10 per cent. H_2SO_4 . A. Contains blood. N. Contains 25 c.cm. N/100 acid. S. Leads to suction pump.

mixture so as to remove all traces of blood. From 6 to 8 drops of caryillie alcohol are then added, and finally 0.3 g. soya bean meal. The rubber stopper is now quickly replaced and the tube closed by means of clips on the rubber tubing. The tube is placed in a bath at a temperature of 40 to 45° C. and left there for 15 to 20 minutes. During this time the blood tube should be occasionally shaken. While the urease is acting on the blood urea 25 c.cm. of N/100 acid are added to the other tube (n) together with 1 drop of caryillie alcohol and 2 drops of methyl red solution.

When hydrolysis of the urea is complete the tube is removed from the bath and connected with the tube containing the acid, so that air passing in through tube (n) will first pass through the blood and then through tube (d) to the acid in the large tube (b). To get rid of possible traces of ammonia in the atmosphere it is necessary to pass the air through a 10 per cent. solution of sulphuric acid contained in tube (k). When the tubes are connected air is drawn through by means of the pump for two minutes or so. By this means any ammonia present in the air in the blood tube is passed into the acid. The blood tube is now opened and with 4 c.cm. of saturated potassium carbonate solution followed by 3 g. of solid anhydrous potassium carbonate added. The stopper is quickly replaced and a current of air drawn through; this should be slow at first, but after a few minutes the pump may be turned on to its fullest capacity. To the air required for complete removal of the ammonia depends on the pump employed, but with an ordinary pump the experiment should be complete in 30 minutes.

The tube containing the standard acid is now disconnected and the acid transferred quantitatively to a small Erlenmeyer flask. To do this the tube and perforated bulb must be washed two or three times with small quantities of distilled water. The acid is then titrated with N/100 sodium hydroxide until the indicator gives a faint yellow colour. The difference between the 25 c.cm. acid originally taken and the number of cubic centimetres of alkali used gives the number of cubic centimetres neutralised by the ammonia. From this 0.4 c.cm. must be subtracted to allow for the acid of ammonia generated from the soya bean.

The calculation is very simple, for when the above quantities are used each cubic centimetre of acid neutralised equals 10 mg. urea.

Estimation of Renal Efficiency in Cases showing no Increase in Blood Urea.

From what has already been said it is obvious that estimation of blood urea gives information only in advanced cases of renal disease. Even though fairly extensive degeneration of the kidneys may be present, it may not be sufficiently advanced to cause any increase in blood urea and this is the type of case most frequently met with in general practice. Such are the cases in which it is perhaps most difficult to arrive at a satisfactory conclusion as to the real condition of the kidneys, and of all the tests used in this connexion we have found the new urea concentration test the most helpful. This test in conjunction with the diastatic reaction gives most useful information.

Urea concentration test.—This test was introduced by MacLean and de Wesselow about two years ago and has now been used in nearly 3000 cases. It has none of the technical difficulties of the great majority of renal functional tests, does not require the patient to be under observation for more than a very short time, and can be carried out with the simplest apparatus. The test depends on the fact that patients with defective kidneys are incapable of passing urine with a high concentration of urea, even after a large dose of urea has been taken by mouth. Further, the degree of concentration of urea appears to be in direct relationship to the involvement of the kidneys. In a normal person the urine passed once or two hours after a dose of 15 g. urea should contain from 2 to 4 per cent. urea. In patients suffering from nephritis the urea percentage is often much less, depending on the gravity of the condition. If the urea percentage is below 2 the condition is unsatisfactory, and the lower the percentage the more serious the condition. Cases with a concentration of urea lower than 1 per cent. are comparatively rare, but many moderately severe cases are unable to concentrate to more than about 1.4 to 1.5 per cent. urea.

Details of test.—(1) The patient empties his bladder and immediately afterwards takes by mouth 15 g. urea dissolved in 100 c.cm. of water. The solution may be flavoured with a few drops of tincture of orange. (2) One hour after taking urea he passes water. This sample is kept and measured. The urea percentage may be estimated in this specimen, but as a general rule it is best to do this in the next specimen. (3) Two hours after taking urea he again passes water. This sample is measured and kept for urea estimation.

The reason why the urea is calculated in the specimen passed two hours after taking the urea depends on the fact that urea may give rise to a certain amount of fluid in patients who have been imbibing large amounts of fluid immediately preceding the dose. Usually the specimen generally passes over in the first hour, so that, in estimation of urea, the specimen passed after two hours is always used for

Very occasionally it happens that a large amount of urine is passed during both the first and second hours; in such cases a specimen passed after three hours should be estimated. It is not convenient to detain the patient for three hours it may be taken for passage of very large amounts of urine, but as a general rule the urea concentration is dependent on diuresis, and a comparatively low kidney disease. Not more than an average of 150 c.cm. does not indicate passed per hour, and in cases where 350 to 600 c.cm. or more are excreted in the two hours of the test any tendency to a low urea concentration may be put down to the passage of excessive fluid. In practice there is seldom any difficulty on this point, but occasionally, and especially when dealing with out-patients, in whom the

intake of fluid cannot be regulated, it is important to bear this possibility in mind. So far the test has given excellent results, and in our opinion more useful information is to be obtained by this simple method than by any other functional test at present in use.

Estimation of Urea.

Urea is estimated by the ordinary hypobromite method.

The apparatus used should give the volume of gas evolved. A very suitable arrangement, which is really a modification of Gerrard's apparatus, is sketched here (Fig. 2). This consists of an ordinary 50 c.cm. graduated burette (A), which has a glass tap (n) fixed at its upper end. This burette is connected by rubber tubing (l) with a bottle (b) containing the urine and hypobromite solution. This solution consists of about 23 c.cm. of 40 per cent. sodium hydroxide solution to which 2 c.cm. of bromine are added. The lower end of the burette is attached by rubber tubing to a small bell-shaped vessel (m) to hold the water displaced by the evolved nitrogen.

Fig. 2.—Apparatus for Urea Estimation. (Modification of Gerrard's apparatus.)

Before carrying out an experiment the water in the burette (A) must be poured into the bulb (m) until it is about three-quarters full. Care must be taken that no air bubbles remain in the rubber tube. The water, of course, rises in the burette until it is at the same level as the water in the bulb. In estimating the percentage of urea 4 c.cm. of urine are measured into the small tube. About 25 c.cm. of sodium hypobromite are put into bottle (b) and the test-tube containing the urine placed inside the bottle so that the fluids do not mix. Tap (n) is then opened and the rubber stopper placed tightly in bottle (b). Bulb (m) is then raised until the level of the water in the burette is at zero. The level in the bulb will be naturally at the same level as that in the burette. Keeping the level at zero, the tap (n) is closed and the bulb replaced in its position. The contents of the test-tube are now thoroughly mixed with the hypobromite, the bottle being shaken for half a minute or so. After another half minute the bulb (m) is raised so as to have the level of fluid in the burette adjusted to that in the bulb. The number of cubic centimetres of gas is then read off and the urea percentage calculated on the basis of 8 c.cm. of nitrogen to 0.5 per cent. of urea. This equivalent has been worked out by estimating the average amount of urea obtained from various specimens of urine by the soya bean method and comparing these with the results obtained by hypobromite.

In conjunction with the urea concentration test we generally employ the diastatic test. In general, when the urea test gives a low result, the amount of diastase in the urine is found to be low.

Diastatic Test.

This test depends on the presence of diastase (the ferment which changes starch into sugar) in the urine. This diastase is obtained from the blood, which in turn gets it from the pancreas. Normally, blood contains a definite amount of diastase, and when the kidneys are efficient a constant amount of this (6 to 30 units) is excreted daily in the urine. In defective kidneys the amount is lower, depending on the degree of deficient renal action. The diastatic activity of any specimen of

cells is low, and suggests that the fever may be due rather to absorption of dead material than to activity of growth. In support of this idea Mr. A. C. Roper recalls a case in which a mass of inoperable glands in the neck was submitted to the X rays, with the result that the temperature went up to 103° , a condition of fatal toxæmia being established, seemingly from excessive destruction of cancer cells. Mr. N. F. Lock makes a different suggestion, that, as in rapidly growing cancer hæmorrhage is common, the absorption of this blood may account for the fever.

Classification of the Conjunction of Fever and Cancer.

I will classify cancers according to the type of fever occasionally found in conjunction therewith:—

A. *Either growth fever or complication fever.*—Liver,* stomach,* suprarenals,* lung with mediastinum, long bones, breast (rarely).

B. *Complication fever only.*—Gall-bladder,* bile-ducts,* large intestine,* small intestine,* appendix,* uterus,* fallopian tubes,* ear,* glands in neck,* tongue, lip, œsophagus, pancreas, peritoneum, rectum, eye, larynx, thyroid.

* Commonly.

C. *Neither form of fever.*—Kidney, ovary, vulva, testis, penis, urethra, parotid, jaw, brain, spine, skin, muscles, heart and pericardium.

Group A.—Cancers accompanied by either "Growth Fever" or "Complication Fever."

Liver.—"Growth fever" is said to be more common in cancer of the liver than in cancer of any other organ. At all events it is not uncommon in primary carcinoma and sarcoma, especially in the rapidly fatal sarcomata of young persons. The temperature generally reaches 101° , and seldom exceeds 102° . It may continue for weeks. The diagnosis of such cancers from abscesses, says Rolleston, may only be possible on exploration, especially in children and young adults. The difficulty is increased by the occasional breaking down of the tumour with the formation of cysts. In quickly-growing secondary sarcomata and carcinomata of the liver "growth fever" may also occur; but here the presence of a primary cancer elsewhere, with perhaps an open ulcer, renders the source of the fever uncertain.

"Complication fever" may be caused by the following complications of hepatic cancer: abscess (single or multiple), suppurative cholangitis, suppurative pyelphlebitis (very rare), empyema (rare), ulcerative endocarditis (very rare). So when we diagnose the presence of one of these lesions, though cancer may not be obvious, we have to remember that either a hepatic cancer, or some other cancer to which a hepatic cancer may be secondary, may be the cause thereof.

It is necessary also to recall in our diagnosis the other febrile hepatic diseases, besides those just enumerated, which must be diagnosed from febrile cancer; and to remember that many diseases of the liver may be associated with fever. Syphilis with gummata may, in the liver, set up a temperature just as cancer may do. Portal cirrhosis is occasionally febrile in its earlier stages, especially in young patients, apart from its febrile complications. The temperature may range from 100 to 102.5° . Biliary cirrhosis (less likely to cause difficulty, from the earlier age and the history) is generally accompanied only by febrile exacerbations with abdominal pains and temporary increase of jaundice. Gall-stones may cause either "intermittent hepatic fever" or the more continuous high temperature of their complications. Abscess, and acute hepatitis short of abscess, may cause a high and swinging temperature with rigors. Lymphadenomatous enlargement of the liver may be associated with the peculiar oscillating and undulatory fever of certain cases of that disease. Lastly, infective jaundice, actinomycosis, supuration hydatid disease, and massive tubercle have to be borne in mind.

Stomach.—"Growth fever" appears to occur in a certain number of cases of cancer of the stomach, seemingly most often in sarcomata, especially in young persons, and in the softer varieties of carcinoma which are often met with on the walls of the organ as distinguished from the orifices. This fever may be present throughout the whole course of a round-cell sarcoma. It is usually continuous and ranges from 99 to 102° . Taking both sorts of fever together, Fenwick finds that a third of all cases of gastric cancer have fever at some part of their course, and he points out that sometimes this fever is so prolonged and severe as to cause serious mistakes in diagnosis; of the cases which have fever about half have it constantly. Osler and McCrae found fever in half their cases, and constant fever in a fifth of this half.

When even occasional fever is present throughout the course of a gastric cancer, chills are common, in which the

temperature may rise as high as 102 or 103° and remain up for two or three days. When the fever is continuous the temperature is generally, Fenwick says, between 99 and 100° in the morning and between 100 and 101° in the evening. Occasionally the morning temperature is subnormal, so that the chart resembles that of suppurative. Either of these types may last for months. Towards the end the fever is apt to cease. In rare cases the fever is constantly over 100° and shiverings and sweatings accompany it.

The complications of gastric cancer capable of causing fever are: general peritonitis from perforation, in about 3 per cent. of the cases; local peritonitis, also in about 3 per cent., producing subdiaphragmatic abscess, generally below the left wing of the diaphragm, abscess between the stomach and the anterior abdominal wall, or some small pocket of pus elsewhere; abscess of the liver, spleen, or kidney from direct invasion of one of those organs—these are rare, especially the last; suppurative pyelphlebitis is very rare.

It is noteworthy that, apart from perforation of a gastric ulcer and the very rare cases of phlegmonous gastritis, gastric diseases are not attended by fever. Hence considerable fever in connexion with gastric disease, but in absence of evident complications, may suggest the presence of some form of rapidly growing cancer.

Suprarenals.—Cancer of the adrenals seems to be very commonly associated with considerable irregular fever, and Dock goes so far as to state that this occurs in half the cases. Such fever appears to be "growth fever," for I can find no statement that inflammatory complications in any case account for it. It is worth calling to mind that acute adrenal hæmorrhage is a markedly febrile disease.

Lungs and mediastinum.—"Growth fever" seems to account for some of the febrile cases reported, since a single large lung tumour may produce fever apparently without inflammatory complications. I remember seeing many years ago, with Dr. Alfred Perkins, an old postman suffering from what resembled acute rheumatic fever, with considerable temperature, sweating, and a rapid very feeble heart. On autopsy a primary cancer of the lung was found on the left side, beginning in the root of the lung and extending upwards and backwards to reach the pleura under the supraspinous fossa; no inflammatory complication was discovered.

All authors describe a rare and remarkable form of pulmonary cancer which runs an acute course of something under three months, with rigors, fever, sweatings, and rapid emaciation, the temperature reaching 102 or 103° . Such cancers have been mistaken by good observers for caseous pneumonia. The presence of moderate and irregular fever in a pulmonary case, coupled with the pressure symptoms which pulmonary tumours exert, has been held to point towards cancer. More often probably fever in lung cancer is due to complications. These are empyema abscesses in the lung from blockage of bronchi, cavities associated broncho-pneumonia.

The same remarks apply to cancer of the mediastinum, often not easily distinguished clinically from pulmonary cancer, where, according to Sir R. Douglas Powell and P. Horton-Smith Hartley, pyrexia of a low irregular type is often present; but in such cases the growth is rarely found at autopsy to be uncomplicated, "broncho-pneumonia" or a slowly disintegrating form of septic bronchopneumonia being most often discovered. W. H. Walsh pneumonia being most often discovered. The diagnosis lies between paradox arises that where the diagnosis lies between cancer and an acute or subacute inflammatory consolidation or effusion, in which fever is practically invariable absence of fever would suggest growth; whilst in cases where the question lies between cancer and a very chronic condition, like some chronic pneumonias, in which fever is generally absent, fever would suggest cancer.

Long bones.—Sir H. Butlin and Dr. Colby in 10 cases of various kinds of sarcoma of the femur found constant fever in 5, habitually 100° in most of them, and 102° in one case to the time of amputation. So far as one can discover from the meagre details, these cases appear to have been uncomplicated. These authors note the difficulty in diagnosis caused by the rise of temperature, but do not definitely state whether inflammatory complications did or did not exist. Mr. Driol as mentioned above, has seen a case of sarcoma of the humerus in which the temperature was constantly between 100 and 101° , with no inflammatory complications.

Breast.—"Growth fever" is definitely stated to occur in rare and rapid cases of primary breast sarcoma. And inference it seems likely that such cases of rapid sarcoma and carcinoma as "simulate abscess" are febrile; but cannot find this stated. "Complication fever," one might again it is not stated, would accompany the abscess which rarely form in connexion with breast cancer.

Group B.—Cancers accompanied by "Complication Fever" Only.

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Fallopian tubes.—Pyosalpinx seems common in this very rare disease.

Tongue.—Dutlin stated that tongue cancers "set up suppuration round them and in the neighbouring glands."

Larynx.—F. Watson-Williams and Sir Felix Semon tell us that "secondary perichondritis, which may proceed to suppuration and exfoliation of cartilages, not infrequently complicates the disease and may quite obscure its objective symptoms."

Thyroid.—Remittent fever is not uncommon in the later stages according to G. Dock, but he makes no mention of suppurative complications.

Esophagus.—Peri-esophageal abscess may be set up, or empyema, or pulmonary gangrene. All are unusual. It may be of interest to mention a case of pulmonary gangrene caused by an esophageal perforation from cancer, where my colleague, Dr. R. V. Golly, found in the fluid an organism at least closely resembling the *Oppler-Boas bacillus*.

Small intestine.—Duodenal cancer, when it involves the biliary papilla, typically ends, Rolleston tells us, in cholangitis. Cancer of the jejunum or ileum may cause fever and tumour so as closely to simulate appendicitis.

Appendix.—Cancer of the appendix causes an attack just like appendicitis, and the nature of the case is only discovered after operation. My colleague, Dr. Ransom Pickard, gives me a good instance of this.

Colon.—The complication to be expected here, causing fever, is peritonitis, general or local. General peritonitis is common. Abscess is not uncommon, and may arise without perforation. Cancer of the caecum may thus simulate appendicitis. My friend, Mr. Russell Coombe, considers that a moderate temperature is a very common accompaniment of these growths, especially of cancer of the sigmoid.

Rectum.—Local abscess or general peritonitis may occur. **Peritonium.**—Extensive areas of the cancerous implantation appear to cause temperature rises of temperature.

Gall-bladder.—Here empyema of the gall-bladder, suppurative cholangitis, suppurative pancreatitis, local peritoneal abscess, general peritonitis, and ulcerative endocarditis have all been recorded.

Bile-ducts.—Suppurative cholangitis, with or without millary hepatic abscesses, is common, and ulcerative endocarditis may arise.

Ear.—The greatest difficulty in diagnosis may be caused by suppuration, which in these growths is scarcely ever absent.

Eye.—Intra-ocular suppuration may be a sequel of intra-ocular growth. Meningitis may also occur.

Pancreas.—It is curious that so little reference can be found to fever in connexion with cancer of the pancreas. But Mr. Dyball tells me he has met with a case in which fever was caused by suppurative cholangitis secondary to carcinoma of the head of the gland.

Prostate.—It would be interesting to know if "growth fever" accompanies the rapid sarcoma of this organ. Fever begins in ordinary cases of cancer when cystitis is set up.

Bladder.—Mr. Dyball tells me that fever begins with cystitis.

Glands in the neck.—My colleague, Mr. Roper, calls my attention to the frequency with which suppuration is associated with large secondary glands in the neck.

Group C.—Afebrile Cancers.

It is not improbable that once sufficient attention has been given to the occurrence of fever in cancer and to its importance in diagnosis some of the cancers which I am now going to enumerate may be found occasionally to cause fever.

From the accounts, however, to which I have been able to gain access neither "growth fever" nor "complication fever" occur in them. A few present, it is true, a terminal fever, such as a final septic pneumonia in parotid cancer, but such fever has little value from a general diagnostic standpoint.

Kidney.—I have never seen fever in kidney cancer, and can find no account of its occurrence. The fact is curious in view of the rapid growth of renal sarcoma in children. Surely, at least in those cases where pyonephrosis arises from obstruction by the growth, some fever may be present. It is not a tumour in the renal region associated with fever should presumably be suprarenal. But so, what happens in cases of renal hypernephroma?

Urethra.—One wonders whether periurethral abscess ever occurs. The growth is excessively rare. I have seen one case which was cut into on the supposition that it was an abscess, but I do not remember any fever.

Ovary.—Here growth may be rapid, and one wonders if "growth fever" occurs.

Jaw and parotid.—Both growths may exhibit a terminal fever from septic broncho-pneumonia. Otherwise, I can find no reference to fever.

Other growths.—Of the other growths in the list given above I have nothing to say, except that I can find no record of their producing fever.

Conclusion.

I am very sensible of the shortcomings of this paper. They seem inseparable from a subject to which too little general attention has been attracted. If my remarks succeed in arousing more interest in what appears an important factor in cancer diagnosis, and especially in that form of fever which I have called "growth fever," my object will have been attained.

CEREBRAL REACTIONS FOLLOWING INJECTIONS OF NOVARSENO BENZOL.

WITH A RECORD OF TWO FATAL CASES.

BY FREDERICK G. HITCH, M.B., B.S. LOND.,
M.R.C.S., L.R.C.P.,

SURGEON LIEUTENANT COMMANDER, R.N.; SPECIALIST IN VENEREAL DISEASES, ROYAL NAVAL HOSPITAL, CHATHAM.

THERE has been much discussion as to the cause of the severe cerebral reactions, usually ending fatally, which from time to time occur during the treatment of syphilis with arsenical preparations of the salvarsan and neosalvarsan type, and up to the present no general agreement on the subject has been reached. It seems, therefore, important to publish any cases in which the symptoms or pathological findings may be helpful.

The two cases here recorded may be regarded as typical. Both patients were well-developed young adults, apparently healthy except for their specific infection, and presented neither in their past history nor present physical condition any of the recognised contra-indications to arsenical treatment; both developed the usual symptoms of epileptiform convulsions and coma, and both terminated fatally.

CASE 1.—This patient, aged 29, was admitted to the Royal Naval Hospital, Chatham, Dec. 18th, 1919, with a primary sore situated within the left nostril, a papular and roseolar rash, and generalised enlargement of the lymphatic glands of the body. *S. Pallida* was demonstrated in abundance in the intranasal sore by dark ground illumination, and the Wassermann reaction in the serum was positive. On Dec. 22nd 0.45 g. novarsenobillon was given by intravenous injection of concentrated solution. No reaction followed. On Dec. 29th a second injection of 0.6 g. was given. A slight "endotoxic" reaction followed indicated by a rise of temperature to 101.2° F. the same evening, falling to normal level next morning. The unusually long interval of seven days between the injections is due to the Christmas holidays. On Dec. 31st, in the morning, the patient's temperature was 99°, but normal in the evening. He complained of slight headache and appeared nervous and apprehensive as to his condition, but on examination no cause for alarm was found. During the night, however, the signs of severe cerebral reaction developed; the patient became completely unconscious; the teeth were tightly clenched, and the jaws could only be opened with difficulty. Almost continuous convulsive movements of the limbs and facial muscles, suggestive of extensor cortical irritation, were present, and continued until a few hours before death. Incontinence of urine occurred. The pulse was rapid, 140 to 150 per minute, equal, regular, and not of high tension. The temperature, at first normal, rose to 103.4° before death, but hyperpyrexia was not observed as in the case following. Urine withdrawn from the bladder by catheter about 12 hours after the onset of the symptoms was found to contain albumin and blood. The respirations were at first frequent, 40 to 50 per minute, deep and stertorous, but later on, as the respiratory centre was becoming exhausted, became gradually slower, shallower, and weaker, and at times the breathing took on a Cheyne-Stokes character. A moderate degree of cyanosis was present, temporarily relieved by inhalations of oxygen. The patient died at 12.25 p.m. on Jan. 2nd without regaining consciousness, death being apparently due to failure of the respiratory centre.

cells is low, and suggests that the fever may be due rather to absorption of dead material than to activity of growth. In support of this idea Mr. A. C. Roper recalls a case in which a mass of inoperable glands in the neck was submitted to the X rays, with the result that the temperature went up to 103°, a condition of fatal toxæmia being established, seemingly from excessive destruction of cancer cells. Mr. N. F. Lock makes a different suggestion, that, as in rapidly growing cancer hemorrhage is common, the absorption of this blood may account for the fever.

Classification of the Conjunction of Fever and Cancer.

I will classify cancers according to the type of fever occasionally found in conjunction therewith:—

A. *Either growth fever or complication fever.*—Liver,* stomach,* suprarenals,* lung with mediastinum, long bones, breast (rarely).

B. *Complication fever only.*—Gall-bladder,* bile-ducts,* large intestine,* small intestine,* appendix,* uterus,* fallopian tubes,* ear,* glands in neck,* tongue, lip, œsophagus, pancreas, peritoneum, rectum, eye, larynx, thyroid.

* Commonly.

C. *Neither form of fever.*—Kidney, ovary, vulva, testis, penis, urethra, parotid, jaw, brain, spine, skin, muscles, heart and pericardium.

Group A.—Cancers accompanied by either "Growth Fever" or "Complication Fever."

Liver.—"Growth fever" is said to be more common in cancer of the liver than in cancer of any other organ. At all events it is not uncommon in primary carcinoma and sarcoma, especially in the rapidly fatal sarcomata of young persons. The temperature generally reaches 101°, and seldom exceeds 102°. It may continue for weeks. The diagnosis of such cancers from abscesses, says Rolleston, may only be possible on exploration, especially in children and young adults. The difficulty is increased by the occasional breaking down of the tumour with the formation of cysts. In quickly-growing secondary sarcomata and carcinomata of the liver "growth fever" may also occur; but here the presence of a primary cancer elsewhere, with perhaps an open ulcer, renders the source of the fever uncertain.

"Complication fever" may be caused by the following complications of hepatic cancer: abscess (single or multiple), suppurative cholangitis, suppurative pyelophlebitis (very rare), empyema (rare), ulcerative endocarditis (very rare). So when we diagnose the presence of one of these lesions, though cancer may not be obvious, we have to remember that either a hepatic cancer, or some other cancer to which a hepatic cancer may be secondary, may be the cause thereof.

It is necessary also to recall in our diagnosis the other febrile hepatic diseases, besides those just enumerated, which might be diagnosed from febrile cancer; and to remember that many diseases of the liver may be associated with fever. Syphilis with gummata may, in the liver, set up a temperature just as cancer may do. Portal cirrhosis is occasionally febrile in its earlier stages, especially in young patients, apart from its febrile complications. The temperature may range from 100 to 102.5°. Biliary cirrhosis is likely to cause difficulty, from the earlier age and the fact that it is generally accompanied only by febrile exacerbations with abdominal pains and temporary increase of jaundice. Gall stones may cause either "intermittent hepatic fever" or the more continuous high temperature of their complications. Abscess, and acute hepatitis short of abscess, may cause a high and swinging temperature with rigors. Lymphadenomatous enlargement of the liver may be associated with the peculiar oscillating and undulatory fever of certain cases of that disease. Lastly, infective pyæmia, actinomycosis, suppurative hydatid disease, and pyæmic tubercle have to be borne in mind.

Stomach.—"Growth fever" appears to occur in a certain number of cases of cancer of the stomach, seemingly most often in sarcomata, especially in young persons, and in the softer varieties of carcinoma which are often met with on the wall of the organ as distinguished from the orifices. This fever may be present throughout the whole course of a rounded sarcoma. It is usually continuous and ranges from 99 to 102°. Taking both sorts of fever together, Fenwick finds that a third of all cases of gastric cancer have fever at some part of their course, and he points out that sometimes the fever is so prolonged and severe as to cause serious mistakes in diagnosis; of the cases which have fever at all he finds it constantly. Osler and McCræ found fever in half the cases, and constant fever in a fifth of this half. When even occasional fever is present throughout the course of a gastric cancer, chills are common, in which the

temperature may rise as high as 102 or 103° and remain up for two or three days. When the fever is continuous the temperature is generally, Fenwick says, between 99 and 100° in the morning and between 100 and 101° in the evening. Occasionally the morning temperature is subnormal, so that the chart resembles that of suppuration. Either of these types may last for months. Towards the end the fever is apt to cease. In rare cases the fever is constantly over 100° and shiverings and sweatings accompany it.

The complications of gastric cancer capable of causing fever are: general peritonitis from perforation, in about 3 per cent. of the cases; local peritonitis, also in about 3 per cent., producing subdiaphragmatic abscess, generally below the left wing of the diaphragm, abscess between the stomach and the anterior abdominal wall, or some small pocket of pus elsewhere; abscess of the liver, spleen, or kidney from direct invasion of one of those organs—these are rare, especially the last; suppurative pyelophlebitis is very rare.

It is noteworthy that, apart from perforation of a gastric ulcer and the very rare cases of phlegmonous gastritis, gastric diseases are not attended by fever. Hence considerable fever in connexion with gastric disease, but in absence of evident complications, may suggest the presence of some form of rapidly growing cancer.

Suprarenals.—Cancer of the adrenals seems to be very commonly associated with considerable irregular fever, and Dock goes so far as to state that this occurs in half the cases. Such fever appears to be "growth fever," for I can find no statement that inflammatory complications in any case account for it. It is worth calling to mind that acute adrenal hemorrhage is a markedly febrile disease.

Lungs and mediastinum.—"Growth fever" seems to account for some of the febrile cases reported, since a single large lung tumour may produce fever apparently without inflammatory complications. I remember seeing many years ago, with Dr. Alfred Perkins, an old postman suffering from what resembled acute rheumatic fever, with considerable temperature, sweating, and a rapid very feeble heart. On autopsy a primary cancer of the lung was found on the left side, beginning in the root of the lung and extending upwards and backwards to reach the pleura under the supraspinous fossa; no inflammatory complication was discovered.

All authors describe a rare and remarkable form of pulmonary cancer which runs an acute course of something more than three months, with rigors, fever, sweatings, and rapid emaciation, the temperature reaching 102 or 103°. Such cancers have been mistaken by good observers for caseous pneumonia. The presence of moderate and irregular fever in a pulmonary case, coupled with the pressure symptoms which pulmonary tumours exert, has been held to point towards cancer. More often probably fever in lung cancer is due to complications. These are empyema, abscesses in the lung from blockage of bronchi, cavities, associated broncho-pneumonia.

The same remarks apply to cancer of the mediastinum, often not easily distinguished clinically from pulmonary cancer, where, according to Sir R. Douglas Powell and P. Horton-Smith Hartley, pyrexia of a low irregular type is often present; but in such cases the growth is rarely found at autopsy to be uncomplicated, "broncho-pneumonia" or a slowly disintegrating form of septic broncho-pneumonia being most often discovered. W. H. Walshe met with complicating empyema on the side most affected at least six times. In lung and mediastinum the curious paradox arises that where the diagnosis lies between cancer and an acute or subacute inflammatory consolidation or effusion, in which fever is practically invariable, absence of fever would suggest growth; whilst in cases where the question lies between cancer and a very chronic condition, like some chronic pneumonias, in which fever is generally absent, fever would suggest cancer.

Lung bones.—Sir H. Butlin and Dr. Colby in 10 cases of various kinds of sarcoma of the femur found constant fever in 5, habitually 100° in most of them, and 102° in one case up to the time of amputation. So far as one can discover from the meagre details, these cases appear to have been uncomplicated. These authors note the difficulty in diagnosis caused by the rise of temperature, but do not definitely state whether inflammatory complications did or did not exist. Mr. Dyball, as mentioned above, has seen a case of sarcoma of the tibia in which the temperature was constantly between 100 and 101°, with no inflammatory complications.

Breast.—"Growth fever" is definitely stated to occur in rare and rapid cases of primary breast sarcoma. And by inference it seems likely that such cases of rapid sarcoma and carcinoma as "simulate abscess" are febrile; but I cannot find this stated. "Complication fever," one imagines (again it is not stated), would accompany the abscesses which rarely form in connexion with breast cancer.

Group B.—Cancers accompanied by "Complication Fever" Only.

Uterus.—Pyometria may occur in either cancer of the body or cancer of the cervix. When pain has come on and the uterus is fixed, W. J. Sinclair finds fever at night (100° or a little higher) constant, and attributes it to parametritis or septic absorption. Later on, he says, occasional fever may be higher still. Pelvic peritonitis, pyosalpinx, and abscess of the ovary are all rare events.

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Colon.—The complication to be expected here, causing fever, is peritonitis, general or local. General peritonitis is common. Abscess is not uncommon, and may arise without perforation. Cancer of the cæcum may thus simulate appendicitis. My friend, Mr. Russell Coombe, considers that a moderate temperature is a very common accompaniment of these growths, especially of cancer of the sigmoid.

Rectum.—Local abscess or general peritonitis may occur. **Peritoneum.**—Extensions of the cancerous implantation appear to cause temporary rises of temperature.

Gall-bladder.—Here empyema of the gall-bladder, suppurative cholangitis, suppurative pancreatitis, local peritoneal abscess, general peritonitis, and ulcerative endocarditis have all been recorded.

Bile-ducts.—Suppurative cholangitis, with or without military hepatic abscesses, is common, and ulcerative endocarditis may arise.

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The two cases here recorded may be regarded as typical. Both patients were well-developed young adults, apparently healthy except for their specific infection, and presented neither in their past history nor present physical condition any of the recognised contra-indications to arsenical treatment; both developed the usual symptoms of epileptiform convulsions and coma, and both terminated fatally.

CASE 1.—This patient, aged 29, was admitted to the Royal Naval Hospital, Chatham, Dec. 18th, 1919, with a primary sore situated within the left nostril, a papular and roseolar rash, and generalised enlargement of the lymphatic glands of the body. *S. Pallida* was demonstrated in abundance in the intranasal sore by dark ground illumination, and the Wassermann reaction in the serum was positive. On Dec. 22nd 0.45 g. novarsenobionna was given by intravenous injection of concentrated solution. No reaction followed. On Dec. 29th a second injection of 0.6 g. was given. A slight "endotoxic" reaction followed indicated by a rise of temperature to 101.2°F. the same evening, falling to normal level next morning. The unusually long interval of seven days between the injections is due to the Christmas holidays. On Dec. 31st, in the morning, the patient's temperature was 99°, but normal in the evening. He complained of slight headache and appeared nervous and apprehensive as to his condition, but on examination no cause for alarm was found. During the night, however, the signs of severe cerebral reaction developed; the patient became completely unconscious; the teeth were tightly clenched, and the jaws could only be opened with difficulty. Almost continuous convulsive movements of the limbs and facial muscles, suggestive of extensive cortical irritation, were present, and continued until a few hours before death. Incontinence of urine occurred. The pulse was rapid, 140 to 150 per minute, equal, regular, and not of high tension. The temperature, at first normal, rose to 103.4° before death, but hyperpyrexia was not observed as in the case following. Urine withdrawn from the bladder by catheter about 12 hours after the onset of the symptoms was found to contain albumin and blood. The respirations were at first frequent, 40 to 50 per deep and stertorous, but later on, as the respiratory system was becoming exhausted, became gradually slower, shallower, and weaker, and at times the breathing took on a Stokes character. A moderate degree of cyanosis was present, temporarily relieved by inhalations of oxygen. The patient died at 12.25 p.m. That the patient was conscious, death by respiratory centre.

CASE 2. A Jew, aged 22, was admitted on Dec. 4th, 1919, with a leaded chamber at the base of the penis, a well-defined mucular secondary rash, ulceration of left tonsil, and general glandular enlargement. The Wassermann reaction in the serum was positive (Dec. 6th). No contraindications to arsenical treatment were discovered, and treatment with intravenous injections of novarsnobillon in concentrated solution was commenced. Three doses, beginning with 0.45 g., and 45 hours later the cerebral symptoms appeared. The patient at first complained of slight headache and sore-throat, his temperature being 99.2 F. About ten minutes after being seen the patient suddenly became unconscious and fell into an epileptiform seizure, followed by convulsive movements of the limbs as in the first case, and this continued until a few hours before death. Incontinence of urine occurred. The pupils were equal and contracted; the corneal reflex was not lost until shortly before death. The pulse was rapid, 140 to 150 per minute, but of good volume and moderate tension. Respiration was rapid, deep, and stertorous, but later, as the minute were rapid, deep, and stertorous, but later, as the respiratory centre became exhausted, shallow, feeble, and irregular. Cheyne Stokes breathing was present. The temperature commenced to rise shortly after the onset of symptoms and hyperpyrexia supervened, the axillary temperature rising to 107.4 four hours after the onset of symptoms. Death occurred 11 hours after the onset of the reaction and was apparently due to failure of the respiratory centre.

Treatment.

The treatment of these cases was on orthodox lines and was apparently quite useless. In the first case lumbar puncture was performed and about 25 c.cm. of clear fluid not under abnormal tension were withdrawn. Adrenalin, 1 c.cm., was given hypodermically at the outset, and was repeated later with no apparent result. Normal saline solution was injected intravenously, also saline and brandy per rectum. When the cyanosis became marked inhalations of oxygen were given, and, in view of the continuous administration, it is regretted that its continuous administration was not adopted. In the second case, in addition to these measures, 20 ounces of blood were withdrawn from the median basilic vein, and cold sponging and an ice-cap were applied in order to combat the hyperpyrexia. In this case, also, no benefit whatever resulted from the injection of the adrenalin, although it was given freely. The advisability of giving this drug in these epileptiform conditions may be called in question by the experience of Benedek,¹ who gave injections of 1-1.5 c.cm. of suprarenal extract to 19 epileptics, and found that seven of these developed a typical seizure from a half to one and a half hours after the injection.

Autopsy.

At the post-mortem examination in each case the most striking naked-eye pathological change was extreme congestion of the lungs, the condition being most marked at the bases. The lower lobes appeared heavy, dark, and deeply engorged with blood; in places they were airless, and on section dripped blood-stained serum.

In Case 2 no other pathological condition was apparent to the naked eye. There was no abnormal meningeal condition, and no disseminated punctate hemorrhages, as described by various observers, were visible in the brain substance. The liver, kidneys, spleen, and other viscera presented a natural appearance.

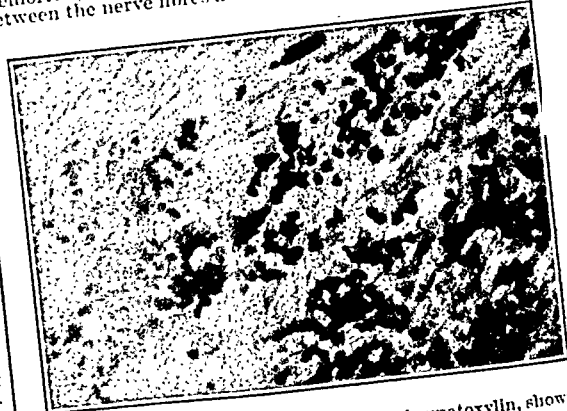
In Case 1 changes were also observed in the brain and liver, that in the latter organ being probably of post-mortem origin, and consisting of irregular yellowish patches scattered over both lobes and extending about 0.5 cm. below the surface. The meninges appeared healthy, but over the surface of the cerebrum, especially of the temporal and occipital lobes, the smaller vessels of the pia arachnoid were thickly encrusted. On section the brain appeared normal in the right eye, with the exception of the optic chiasm, which was enlarged, and the ventricles were compressed and displaced from the smaller vessels. The pia arachnoid was not enlarged, and the ventricles were compressed and displaced from the smaller vessels. The kidneys presented no evidence of congestion or inflammation, in striking contrast to the picture seen in the microscopic sections. No other pathological changes were seen in the other viscera. A complete investigation as to the presence of arsenic in the various organs was not carried out, and in view of the

rapid elimination of novarsnobenzol, little or no information would be gained thereby. Marsh's test was performed for the presence of arsenic in the brain of the first case, but a negative result was obtained.

Microscopic sections were made of the lungs, kidneys, optic thalamus, and liver of the first case.

Lungs: Sections were made through the deeply congested portions, and stained with hematoxylin and eosin and by Heidenhain's iron-hematoxylin method. They presented a striking appearance, characterised by interalveolar, and especially interstitial, bleeding from the capillary vessels. Some proliferation of the cells of the epithelial lining of the alveoli, with shedding of the so-called "catarrhal" cells, was also shown. The smaller bronchioles were filled with red blood cells. The most striking feature was the pronounced interalveolar bleeding.

Optic thalamus: Sections were cut through the hemorrhagic area, and similarly showed extensive capillary hemorrhage, the blood from the ruptured capillaries lying between the nerve fibres and cells.



Section of optic thalamus stained with iron-hematoxylin, showing extravasation of blood between nerve fibres.

Kidneys: In these organs, also, capillary bleeding was the outstanding feature of the sections. The selective action of the toxin causing the condition was well shown, for while the glomerular tufts presented a normal appearance, there was widespread extravasation of blood into, and especially between the tubules from the capillaries of the tubular portion of the organ.

Liver: Sections were made through the areas of discoloration observed at the post-mortem examination. Here, also, capillary hemorrhages were present, although the bleeding was not so widespread as in the other organs examined. The feature common to all these sections is therefore the extravasation of blood from injured and ruptured capillaries, the interalveolar bleeding in the lungs being especially remarkable.

On the Causation of Symptoms.

Several hypotheses have been advanced to account for the production of the condition under consideration, and at present that of G. Milian, attributing the symptoms to the vaso-dilator effects of the arsenical preparation acting in a patient with diminished suprarenal activity, is the one most widely accepted. The treatment of the cases by adrenalin given in various ways has been recommended by many authorities. The condition is known by the supporters of this theory as "serous apoplexy." An interesting résumé of the subject is given in *Medical Science* for January, 1920, where some interesting cases are quoted in support of and against Milian's explanation.

Surgeon Lieutenant Commander R. J. G. Parnell, R.N., has recently recorded an interesting case which recovered after the intravenous injection of urotropine and the continuous administration of oxygen, and Surgeon Commander Sheldon F. Dudley, R.N., in a note appended to his paper, advances the opinion that these cases are probably accompanied by anoxemia, possibly of the type described by Professor J. S. Haldane, as due to the alteration of the dissociation curve of oxyhaemoglobin, so that it gives off oxygen less readily in the tissues.

The post-mortem appearances in the two cases here described appear strongly to support Surgeon Commander Dudley's contention, but I would rather refer the production of the anoxemia not so much to the alteration of the dissociation curve of oxyhaemoglobin but to another condition stated by Professor Haldane to be a factor in causing anoxemia—that is, defective saturation of the arterial blood.

with oxygen, owing to swelling, exudation, or other abnormality in or around the alveolar walls, preventing the diffusion of oxygen inwards quickly enough to saturate the blood in the limited time during which it passes through the alveolar capillaries.

The swelling or shedding of the lining cells of the alveoli and the widespread interalveolar and interstitial hemorrhage seem quite sufficient to bring this about, and the capillary bleeding in the brain and other organs would further prevent the tissues from obtaining their requisite amount of oxygen from the already anoxicemic blood. The same process taking place in the kidneys, acting in the same way, would be a sufficient cause of the anuria or albuminuria described in many cases and attributed to the direct toxic action of the arsenic. The forced breathing, rapid, deep, and stertorous, which occurs in these patients would also tend to increase the degree of anoxemia.

Conclusion.

The conclusion arrived at is that the widespread capillary hemorrhages, demonstrated by microscopic sections, afford a clear anatomical basis for the hypothesis put forward by Surgeon Commander Dudley that the symptoms are due to anoxemia, that this anoxicemic condition is mainly produced by inter-alveolar hemorrhage into the lungs, and to a less extent by interstitial capillary bleeding into other organs, and that the continuous administration of oxygen as carried out by Surgeon Lieutenant Commander Parnell offers the best hope of recovery in these unfortunate cases.

These appearances would also seem to explain in part the rapid development of the symptoms and the comparatively slow recovery, as instanced by Surgeon Lieutenant Commander Parnell's case, resulting from the continuous administration of oxygen.

I wish to express my thanks to Surgeon Commander E. L. Atkinson for his kind assistance, especially in preparing the accompanying photomicrograph.

References.—1. Wien Klin. Wchnschr., 1918, xxxi., 1365. 2. THE LANCET, Jan. 24th, 1920. 3. Brit. Med. Jour., July 19th, 1919. 4. Loc. cit. and Brit. Med. Jour., Jan. 31st, 1920, p. 151. 5. Loc. cit.

TRAUMATIC RUPTURE OF THE HEART.

By R. K. HOWAT, F.R.C.S. ENG.,

HONORARY SURGEON, NORTH RIDING INFIRMARY, MIDDLESBROUGH.

TRAUMATIC rupture of the heart is generally due either to gunshot or to stab wounds. These being commonly received in front, one or other of the right chambers of the heart is the usual site of the rupture. Such ruptures, where not immediately fatal, offer a prognosis distinctly better than do spontaneous ruptures. The wound in the pericardium permits the escape of blood from that sac and so diminishes the risk of rapidly fatal embarrassment of the heart's action; the circumstances of the case, the site, and direction of the wound in the body wall make diagnosis less difficult and so facilitate treatment, and the patient and his heart tissue are often healthy. That such ruptures of the heart have been recovered from, with and without operative treatment, is familiar enough.

An Unusual Case.

The following case is of interest for two reasons—because of the nearly complete absence of skeletal and superficial injury following upon extreme violence and because of the unusual nature and circumstances of the heart's rupture.

A well-built, healthy shipwright, aged 23 years, sustained a clean, unbroken fall of 45 feet, alighting on a wooden plank and some steel plates lying on the ground. The precise position of his body at the end of the fall was not known. He was not killed outright, but was dead on his arrival at hospital some 20 minutes later.

On post-mortem examination of the body about six and a half hours after death rigor mortis had not begun. Preliminary inspection revealed no damage beyond a few scratches and bruising at the right elbow. A deliberate examination by inspection and palpation showed no further evidence of bruising, laceration, fracture, or dislocation. The peritoneal cavity contained about 2½ to 3 pints of fluid blood, of which the source appeared to be five transverse lacerations of the right lobe of the liver—four on its upper, one on its under surface immediately to the right of the transverse

fissure. There was a considerable quantity of blood effused into the retroperitoneal tissue. There were two transverse tears about half an inch apart on the front of the right kidney near its middle, one through little more than the capsule, and one about 1 inch in depth through practically the entire width of the kidney. No other source of retroperitoneal hemorrhage was found. No other abdominal injury was discovered.

I failed to identify the source of a moderate extravasation of blood into the cellular tissue of the posterior mediastinum. This blood extended to the back of the root of each lung underneath the pleura, but not into the substance of either lung, which, indeed, appeared to be normal throughout. The pericardium was intact and contained about a pint and a half of fluid blood. After considerable search a slit-like opening into the cavity of the left auricle was found, about a quarter of a centimetre in length, and situated exactly in the length of the free edge of the left auricular appendage.

Professor B. G. Shattock kindly made a microscopical examination of the appendage wall, and reports that there is no trace of any form of disease.

Remarks on the Case.

The height above the ground of the planks from which deceased fell was 45 ft., and the fall was unbroken. The injuries were thus caused by the violent impact of the body against the plank and plates on the ground. The visceral injuries, and particularly the fact that the ruptures in the liver and right kidney were transverse in direction, suggest antero-posterior compression of the trunk, and the complete absence of bruising of the body wall is remarkable. It would seem on first thought almost incredible that such a fall should occasion no injuries other than visceral. It is probable, however, that such cases are not so very uncommon, and it is therefore important that they should be recorded, as the question is one of considerable legal importance.

In this case the nature and accompanying conditions of the cardiac rupture raise questions as to the mode of its production. Cases of cardiac rupture are commonly divided into two classes, spontaneous and traumatic. The former occur from within because a local weakness of the heart's wall renders it there unable to withstand the pressure of the contained blood. Such local weakness is most commonly the result of disease, and its favourite seat is the left ventricle. Spontaneous rupture of the entire thickness of the heart's wall is rapidly and, doubtless, invariably fatal, because the shed blood, accumulating within the intact pericardium, quickly embarrasses the heart's action to the point of stoppage, and because it is practically impossible to diagnose and so directly treat the condition in the short time available. That spontaneous rupture of a quite healthy heart ever occurs may be doubted. A cautious reference to a possible case of this is given in Wilks and Moxon, "Pathological Anatomy" (p. 120).

Delayed Traumatic Rupture of the Heart.

But there are cases of traumatic rupture of the heart without wound of the pericardium, and these tend to resemble cases of spontaneous rupture in their rapid course. Again, trauma may cause injury of the heart's wall without immediate rupture, but after an interval the injured area may prove the site of a rupture, which may be described as "delayed traumatic" or "spontaneous" according to predilection. Where the interval between the receipt of injury and death is considerable difficult questions about the cause of death may be raised by claims for monetary compensation or damages for fatal accidents.

An excellent illustrative case of delayed traumatic rupture of the heart has been described to me by my colleague, Dr. J. Donaldson, as occurring in his practice.

The patient was a bricklayer, aged 65, unusually dejected, who enjoyed good general health. He was working beside a large iron pipe close to which were the rails on which bogey trucks ran. On the approach of a truck he stood with his back pressed close against the pipe in order that the truck might clear him. Owing to his depth of chest the truck which had cleared others just failed to clear him, and squeezed the front of his chest, scamping the skin, but doing no further apparent local injury. He was in bed for two weeks and resumed work after three weeks. His pulse-rate showed no departure from the normal, and his general condition called for no special remark or anxiety. After three days' resumption of work he felt unable to

continue, his chief complaint being pain in the chest. He was confined to bed again for two weeks, during which his pulse-rate rose gradually from 30 to 60. He appeared to be progressing favourably when he suddenly died. A post-mortem examination revealed no injury of any part of the thoracic wall, except the scraping of the skin. The pericardium was intact and full of blood. No disease of any part of the heart substance was found. The left ventricle alone was injured. Its wall was bruised in five places, three in front and two behind. The largest bruise, the size of a shilling and extending through the greater part of the wall's thickness, was in front near the apex. Here the ventricle wall was ruptured.

Results of Pressure.

Traumatic rupture of the heart within an intact pericardium is almost certainly due either to compression or concussion. Pressure may act in two ways. It may either directly injure the heart tissue (by bruising) so that the injured part gives way immediately or later, or else, without directly injuring the heart tissue, it may so raise the intracardiac blood pressure that the healthy heart wall is burst from within. Compression depends on the amount of force, concussion on the rapidity of its application. In Dr. Donaldson's case the circumstances suggest that compression alone was operative, the heart being squeezed between the front and back of the thorax. Professor Shattock has been kind enough to inform me of three cases of traumatic rupture with intact pericardium. Two of these are among the "gunshot" injuries from the seat of war in the Royal College of Surgeons of England.

In one (specimen No. 657) there was a shell wound of the skin in the left midaxillary line, comminuted fracture of the fourth and fifth ribs, and laceration of the left lung. The anterior wall of the left ventricle shows a vertical perforation occupied by clot in which no missile was found, and no wound was found in the pericardium. The interval between the time of wound and death is not mentioned. Such an injury points to contusion of the heart wall by the broken ribs acting through lung tissue and pericardium. Its mode of production also permits of the action of concussion. The latter factor may have been still more operative in the other gunshot case (specimen No. 456) in which there was a non-penetrating wound of the thoracic wall, without fracture of ribs or sternum, the pericardium was found distended with blood, and the anterior wall of the right ventricle showed a minute rupture. In the third case, related to Professor Shattock by Mr. C. F. Beadles, a lunatic was struck on the chest with a spade. A rupture of the heart was found without fracture of bone.

In these two last cases, as in that of the shipwright, the circumstances suggest that concussion, as distinct from compression, may have played a part. But what that part amounted to it is impossible to calculate. In the shipwright's case the fact that the heart wall showed no sign of injury except the rupture itself indicates that pressure probably operated through its effect on the blood within the left auricle. This would be most effective when the auricle was at its maximal distension, and the site of the rupture suggests that the incidence of the pressure on the distended auricle has been such as to tend to drive the contained blood away from the natural openings and towards the blind extremity of the chamber.

PROPOSED HOME FOR INVESTIGATION AT HARROGATE.

—The establishment at Harrogate of a clinic for the investigation (as opposed to the prolonged treatment) of chronic diseases and of disorders of metabolism, on lines similar to those of the well-known Duff House, Banffshire, is in progress. Suitable premises are being adapted to accommodate 50 beds in the first instance, further extensions being made as the need arises. The staff will consist of a resident physician, visiting physicians and surgeons, a radiologist, and a pathologist. Certain members of a fully trained nursing staff will be detailed to control the department of dietetics. Special lines of investigation will be undertaken as opportunity offers, and the results will be collated and published from time to time. It is stated that the scheme is to be constituted as a limited liability company under the management of a board of directors, in which the medical profession is to be represented in sufficient numbers to ensure that the institution is conducted on lines conformable with professional requirements and traditions.

Clinical Notes: MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

CONGENITAL STENOSIS OF THE AORTA.

By R. O. MOON, M.D. OXON., F.R.C.P. LOND.,

PHYSICIAN, NATIONAL HOSPITAL FOR DISEASES OF THE HEART,
WESTMORELAND STREET, W.

THE special points of interest in this case are the very few symptoms calling attention to the heart, combined with the pronounced physical signs and the comparatively slight impairment of the boy's general activity.

D. R., a boy, aged 11 years, came as an out-patient to the Heart Hospital in March, 1919, complaining of "headache, looseness of the bowels, and some recent epistaxis." There was nothing of importance in the family history. During the first 18 months of his life he had apparently been somewhat delicate, and in the early weeks of infancy his mother said that "he had seemed to strain for breath at times," but had never been taken to a doctor for it. When 18 months old he had measles and shortly afterwards he was taken to the Children's Hospital, Kensington, when the parents learnt for the first time that his heart was diseased.

At the age of 3½ years he is said to have brought up a large quantity of blood, which seems to have been vomited, and was taken to St. Mary's Hospital, where he remained for six weeks and "congenital morbus cordis" was diagnosed, a thrill over the aortic area and a basic systolic murmur being specially noted. After this his general health remained good apart from occasional attacks of epistaxis. He would, however, often complain of headache and have to stay away from school for a day or two on that account. He was always active and energetic and could always walk a fair distance and even play football without becoming breathless or tired, though he got breathless sooner than other boys. In general appearance he was distinctly undersized, very pale, but bright and intelligent-looking. The apex beat was in the fifth space in the nipple line with a somewhat forcible cardiac impulse and the dullness a trifle increased to the left. Over the aortic area there was a very coarse systolic thrill, which was also palpable over the carotid arteries. All over the precordial area there was a harsh systolic murmur, having a maximum intensity at the second right interspace, where it could be heard several inches from the chest wall. Pulse was small in volume, rate 70.

The X-rays showed nothing abnormal, but in the electrocardiogram the T-wave was inverted in Leads II. and III., while in Lead III. the P-wave was inverted. There was no evidence of left-sided preponderance. The Wassermann reaction was negative. The boy was brought back to the hospital six months later, feeling quite well, for permission (which was given) for an anaesthetic for the removal of teeth. Some three weeks later I heard that he had died quite suddenly at school, having seemed perfectly well in the same morning.

Dr. K. E. Eckenstein, who did the post-mortem, found a much enlarged thymus gland. Lungs, liver, spleen, and kidneys were normal. The heart weighed 8½ oz. Thickness of left ventricular wall 3-3½ cm.

Professor Sir G. Sims Woodhead kindly made a special examination of the heart for me, and his report is as follows:—

There is well-marked evidence of old endocarditis on the left side though little on the right side. The aortic cusps are enormously and irregularly thickened, "cartilaginous," rigid and adherent at the angles, with rounding and retraction at the margins. During life, owing to stenosis, this must have given rise to marked interference with the passage of the blood from the ventricle to the aorta with, in all probability, a certain degree of regurgitation through incompetence from the rigidity of the valves and thickening and irregularity of their margins. At one point near the edge, and apparently at the junction of two cusps, is a slightly more recent fibrous mass, which seems to me to be an indication that the process of cicatrization and fibrous tissue formation has been going on intermittently for a considerable period. At the base of the mitral flap, just below the aortic valve on the ventricular side, there is some thickening and fatty (?) degeneration, apparently the result of some past inflammatory condition. The mitral valve itself appears to be slightly contracted, and on the side of the ventricular wall divided by two indentations, also indicating mitral chief at some very remote period. The ring at the base of the valve is irregular, but I do not think there has been either obstruction or incompetence in any marked degree, though the thickening of the ring and the imperfect closure may have allowed of some reflux and of the formation of fluid veins as a result of hypertrophy of the wall of the left ventricle, but the muscle appears to be sound, though at points where the musculi papillares join the chordae tendineae, and from some distance down into the muscle there is an increase of fibrous tissue. This, however, is not an important feature. There is little or no dilatation. In the hypertrophied muscle there appears to be an increase in the amount of fibrillar tissue; this, of course, being much more marked near the endocardium where the endocarditis is a prominent feature. The external cusp of the tricuspid valve appears to be similarly irregularly divided, slightly thickened and retracted, and is very interesting. The pulmonary valves are normal. There was no abnormal communication between the chambers.

Remarks.

While coarctation of the aorta—i.e., the constriction of the descending arch—at a point between the left subclavian and the insertion of ductus arteriosus, though among the rarer of congenital abnormalities is yet not so very uncommon, a congenital stenosis at the level of the aortic valves is exceedingly rare; when it does occur it is usually due to the absence of one of the sigmoid valves and the exaggerated development taken on by the two others, the physical signs being those of an acquired aortic stenosis. The slight degree of impairment of general activity in view of the great contraction of the aortic orifice is, no doubt, partly explained by the great hypertrophy of the muscular tissue of the left ventricle, which was quite healthy, and the absence of any appreciable dilatation. This healthiness of the muscular tissue militates against the usual supposition that an inverted T-wave in Lead II. is indicative of myocardial degeneration. The pathological significance in this case of an inverted P in Lead III. I am unable to explain, apart from the fact that the auricular impulse must have arisen at an abnormal focus.

Montagu-square, W.

OBSTRUCTION DUE TO THE FORMATION OF A SPUR AFTER FINNEY'S OPERATION.

By R. P. ROWLANDS, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO GUY'S HOSPITAL.

It may be remembered that in Finney's method of gastro-duodenostomy the pylorus, the pyloric end of the stomach, and the first part of the duodenum are, if necessary, thoroughly freed from adhesions, and the contiguous borders of the stomach and duodenum are incised downwards from the strictured pylorus for 2½ to 3 in. In this way the pyloric opening is greatly

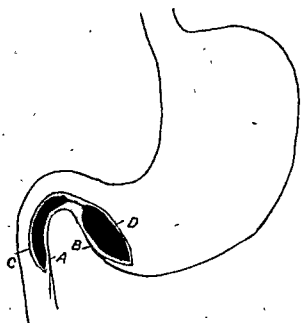


FIG. 1.—Finney's operation. The incision is along the contiguous borders of the stomach and duodenum 2½ in. in front of the great omentum. A and B are sewn together and C and D are sewn together.

and permanently enlarged and pyloric spasm is prevented. (See Fig. 1.)

The following case, in which Finney's operation for gastro-duodenostomy had been performed, is, as far as the writer knows, unique. A spur formed below the anastomosis and almost completely hindered the exit of food from the stomach, with the result that the patient became so extremely thin that malignant disease was feared. An operation was only undertaken as a forlorn hope. Gastro-jejunostomy completely relieved the patient, who has since then ceased vomiting and has gained much weight.

L. J., a married woman, aged 40. Neurotic and thin. Had suffered for several years from indigestion, vomiting, and hæmatæmia. A diagnosis of gastric ulcer was made and she was admitted to Guy's Hospital for operation two years ago. A chronically inflamed appendix was removed and a dilated pyloric stomach, with an ulcer on the lesser curvature 3 in. from the pylorus, was found. The pylorus was much dilated and the patient

the neurotic type pylorospasm due to the gastric ulcer was thought to be an important element, and Finney's operation was chosen instead of gastro-jejunostomy. This was easily performed, a 3½ in. opening being made. The patient did very well while in hospital and went home within three weeks. Unfortunately, her doctor died just then, and his partner being at the war no one supervised her after-treatment.

Before very long vomiting returned and gradually increased and the patient lost flesh during the next two years. She was readmitted to Guy's in February, 1920, extremely emaciated, weighing only 5 st., and was examined thoroughly by radiography and chemical analysis of the gastric juice. Both these examinations were unsatisfactory because the patient vomited almost immediately after swallowing anything. The gastric shadow was small and distorted, and there was marked achylia. It was therefore suggested that she had a gastric carcinoma high up. Cardiac spasm or other obstruction of the oesophagus was, however, definitely excluded by the X-ray examination.

As a last resort I explored the abdomen and was surprised to find a greatly dilated hypertrophied stomach; the ulcer had quite healed, leaving no trace beyond a small scar. The pyloric end of the stomach was greatly dilated and rounded off, the first part of the duodenum having become part of it. (See Fig. 2.) It was then recognised that there was a valvular obstruction between the stomach and the duodenum, and a posterior gastro-jejunostomy was rapidly performed. The patient went out of hospital eating almost full diet, putting on weight and gaining strength, and four months later I heard that she was doing well.

FIG. 2.—Spur formation after Finney's operation. A, Spur. B, Opening made at secondary gastro-duodenostomy.

The Advantages and Disadvantages of the Operation.

It is claimed that Finney's operation is easy and simple, and can be performed in a very short time. This is a distinct advantage when pyloric stenosis coexists with hour-glass contraction, and has to be treated after gastro-gastrostomy in a feeble patient. It is also claimed that the size and position of the new orifice are such as to provide free drainage of the stomach, unless the latter is greatly dilated and atonic; that spur formation and the development of a vicious circle are impossible, and that there is a special freedom from post-operative nausea and vomiting. The operation is thus peculiarly valuable for nervous women (regurgitation of bile does occur in some cases, however); even a large ulcer may be removed from the anterior aspect of the pylorus, stomach, or duodenum without fear of subsequent cicatricial contraction. There is no risk of jejunal ulceration after this operation. It does not interfere with digestion in the duodenum or with the reflex secretion of bile and pancreatic juice; hence absorption should be a little better than after short-circuiting.

Disadvantages.—Although the operation is a great improvement on pyloroplasty, the separation of adhesions is troublesome and may be dangerous. Adhesions are not quite so good as those of The after-results are not quite so good as those of gastro-jejunostomy. It is contra-indicated in most cases of active ulceration or with dense adhesions, and its mortality is higher than that of gastro-jejunostomy. The mesogastrium may be too short or the duodenum may be too fixed to allow easy approximation of the parts, which may then have to be joined in the depth of the wound. To these disadvantages the slight risk of spur formation must be added. This complication would seem more likely to happen with a greatly dilated prolapsed stomach and freely movable second part of the duodenum. A large opening, extending well down the gastric pouch, would diminish the risk.

Queen Anne-street, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A CLINICAL meeting of this section of the Royal Society of Medicine was held on June 9th, Mr. W. T. HOLMES SPICER, the President, being in the chair.

Perithelioma of the Lid (?)

Mr. R. S. CHARSLEY showed a specimen of what he regarded as Perithelioma of the Lid. The tumour had been mistaken for an ordinary meibomian cyst by the practitioner and incised by him. When the case was referred to the exhibitor he removed the tumour, and the man remained in good health for two months. At the end of that period, however, the temporal bone began to enlarge, and the patient became less vigorous. Two months later still he developed weakness in the spine, and ultimately curvature there, probably due to a recurrence in the vertebrae. Death took place six months after the tumour became prominent. A pathologist pronounced it to be perithelioma. Mr. Charsley found the tumour at the operation was encapsuled, was easy to remove, and there had been no recurrence in situ when the man died.—Mr. TREACHER COLLINS regarded the growth as an alveolar sarcoma.—Mr. M. S. MAYOU alluded to the large size of the cells in the tumour, and inclined to the view that it was perithelioma. He had seen such tumours break down into soft caseous masses.

Mr. LESLIE PATON related the particulars of a case of Endothelioma of the Orbit, which he removed, completely in his own and others' view, but there was a progressive spread subsequently to the various glands of the body, the death two years after the appearance of the original growth having been directly due to a large mediastinal growth of the same nature.

Neuro-fibromatosis.

Mr. A. W. ORMOND showed a case of Neuro-fibromatosis (von Recklinghausen's disease). There was extensive pigmentation over the body, especially on the parts usually coloured, and there were many soft tumours, which felt like fibro-lipomata. The man was 28 years of age, a gardener, and his complaint on coming to the hospital was of headache and failure of sight. The vision was 6/18 in each eye, and there was optic atrophy as a sequel of papilloedema. Wassermann reaction was negative. The patient's hands and feet were larger than normal, and the supra-orbital ridges were very prominent; there was also some kyphosis. The tumours were not tender on manipulation. The systolic blood pressure was 105 mm., the diastolic 80. He thought the association of conditions pointed to overaction of the pituitary body, not unlikely to be due to a condition affecting the fibrous tissue at the base of the brain. Alexis Thomson had shown that in the recorded cases practically all the cranial nerves, in one or other of them, had been involved. Mr. Ormond exhibited skiagrams of the skull.—Mr. J. H. FRANK thought that probably there had been an irritation of the pituitary body, causing the hypersecretion which eventuated in the acromegaly.

Cyst of the Iris.

Mr. W. H. McMULLEN exhibited a patient with Cyst of the Iris. It had been dealt with by iridectomy, part of the cyst being removed. There was no history in this case of injury with resulting implantation of epithelium, the usual course of events in these cases. The condition was noticed when the child was less than a year old, hence it was either congenital or had developed at a very early age. As the tension of the eye was normal and the condition appeared to cause no inconvenience, he proposed to leave it alone.—Mr. FRANK related a similar case, and thought there had probably been an accidental puncture which had not been noticed and which quickly healed up.—Mr. TREACHER COLLINS pointed out that cysts of the Iris

did sometimes arise without there having been a puncture injury. Endothelial cysts could be cured by transfixion, and he related a case in point.—Sir WILLIAM LISTER thought the careless habit of some women of putting pins and needles in pillows and cushions might be answerable for some of these cases; the baby might be put on to such a pillow and nothing wrong be noticed, as there would probably be rapid healing.—Mr. ORMOND supported Sir William Lister's view, and spoke of three or four cases he had had fairly recently in which the parents had no idea of how the condition was caused.

Other Cases Shown.

The PRESIDENT exhibited a patient who had Horse-shoe-shaped Opacities in the Cornea. The only complaint was a gradually diminishing vision during the last few years. No other member of the family had a similar condition. The history obtainable was purely negative.

Mr. G. W. ROLL showed a child, aged 3 years, the subject of Herpes Ophthalmicus. The attack occurred in February last, simultaneously with chicken-pox, the eruption remaining on the brow. Part of the eruption was along the nasal nerve to the tip of the nose, and the cornea also was involved. The intimate connexion between chicken-pox and herpes ophthalmicus had been noted by many observers. He referred to other cases of the condition.

The PRESIDENT and Mr. FISHER related similar cases.

Mr. J. F. CUNNINGHAM brought forward a case in which a mass obscured the optic disc. The school medical officer discovered the defective vision, and the father brought the boy to the ophthalmic hospital, where a history of trauma was elicited.

Dr. RAYNER BATTEN showed a case of Superficial Punctate Keratitis, which had persisted two years and proved very resistant to a great variety of treatments.

The PRESIDENT mentioned a similar case in his own practice, in which the treatment seemed equally hopeless. In that case the disease, after a number of years, appeared to wear itself out.

Mr. McMULLEN showed a second case, one of Congenital Malformation in the Outer Canthus, an appearance unique in his experience and in that of others whom he had shown the patient to. The outer extremities of the left lids were separated by a low pad or cushion of tissue covered with skin. The suggestion of an amniotic band and adhesion before the displacement which had been made seemed a likely one.—Mr. TREACHER COLLINS said the case reminded him of the class of case described by Sir George Berry, of which the speaker had himself had examples, in whom there was a remarkable symmetrical flattening of the malar bones, causing him at first to suspect that the patients were brothers. He thought the condition was best explained on the hypothesis of some delayed closure of the cleft between the fronto-nasal plate and the superior maxillary plate at the outer canthus.

Mr. M. L. HINE showed a case in which a sebaceous horn had become malignant, had recurred after removal, and was very greatly improved by a single eight-hour application of radium. The case was still under treatment and observation.

The concluding exhibits were a case of Furrow Keratitis by Mr. P. G. DOYNE and a specimen of "Daylight Glass" by Mr. W. WALLACE, such as had been evolved from the investigations in Cornell University, U.S.A. It was very largely employed in that country for microscope work, and was also used in many large factories.

NORWICH MEDICO-CHIRURGICAL SOCIETY.

EXHIBITION OF CASES AND SPECIMENS.

A CLINICAL meeting of this society was held at the Norfolk and Norwich Hospital on June 1st, when a number of interesting and unusual cases were shown.

Dr. H. MEIR EVANS (Lowestoft) exhibited two specimens of Uterine Myomata with Complications, and Sir HAMILTON BALLANCE exhibited the following

specimens: (1) prostate removed entire from a man of 76, showing a well-marked middle lobe; (2) large papilloma growing from the anterior wall of the bladder, removed from a man of 65; (3) pylorus and adjacent parts of stomach and duodenum, showing a malignant growth, removed from a woman of 50.

Sir H. BALLANCE also showed the following cases:—

1. Boy, aged 6, with severe double congenital talipes equino-varus. The left foot had been operated on—the astragalus, navicular, cuboid, and some of the anterior part of the os calcis had been removed. There was still some displacement inwards of the anterior half of the foot to be corrected.

2. Man, aged 34. Gunshot wound of the left arm four and a half years previously, causing complete and permanent paralysis of the musculo-spiral nerve with wrist-drop. The palmaris longus tendon was divided and sutured to the long extensor of the thumb, the flexor carpi radialis to the common extensor of the fingers, and the flexor carpi ulnaris to the extensor carpi ulnaris.

3. Man, aged 23. Wounded five years ago in left chest and abdomen, portions of the seventh and eighth ribs being carried away. Four years ago silver-wire filigree, 44 in. by 3 in., was inserted to cure a hernia where the ribs were missing. At the present time the patient has great discomfort from a large hernia of the stomach through the diaphragm into the left side of the chest, which it is proposed to operate upon. The heart is displaced to the right. Two skiagrams taken with bismuth in the stomach were shown, one with the patient standing up and the other when he is lying down. The wire filigree appeared in position.

Mr. G. MAXTED showed a very interesting case of Congenital Coloboma of the Disc, which had been at first diagnosed as a case of glaucoma.

Mr. A. J. BLAXLAND showed a case of Excision of the Rectum, with preservation of the external sphincter. He also showed a case of Sprengel's Shoulder (congenital elevation of the scapula), though some of the members did not agree as to the diagnosis.

Dr. MUIR EVANS exhibited a case of Renal Dwarfism in a girl of 17, in which the prominent symptoms were arrested growth, difficulty in walking, marked genu valgum, enlargement of the ends of the ribs, combined with a urine of low specific gravity (1005) containing a considerable amount of albumin, and a low blood pressure (80). He referred to several cases of renal disease associated with bone changes which had been described by Dr. Hugh Barber, of Derby, in a paper published in THE LANCET last January.

Dr. H. J. STARLING brought forward a case of the rare condition known as

Coracoclavicular of the Aorta.

The patient was a pensioner, aged 40, who had been before the war a railway labourer, doing heavy work. He enlisted in June, 1915, and was sent to Mesopotamia in January, 1916, when he began to feel dyspnoea, and was transferred to a hospital in India for treatment. He was sent to Alexandria, where he was diagnosed as aortic aneurysm. He was sent to England and discharged in August, 1916, for V.D.H. and orchitis, and has done no work since. Present symptoms are pain round the precordium and dyspnoea on exertion. Pulse-rate is 76, after 40 hops 100, after one minute 80. X-rays show evidence of aneurysm. The apex beat is heaving, in the fifth space just outside the nipple line. A blowing systolic murmur can be heard at the apex in all postures, and the aortic second sound is accentuated. The subclavian, radial, and carotid arteries are hard, full, and heaving. The blood pressure in the brachial artery is 25-148. The abdominal aorta and the femoral arteries are distended to detect and the blood pressure in peripheral arteries is difficult to detect and the blood pressure in this system is too low to be estimated accurately. There is a mass of varicose arteries in each axilla, and tortuous arteries can be seen or felt under the skin in the areas supplied by the intercostal, mammary, epiaxillary, and other arteries. The course of the blood is from above downwards.

Dr. Starling said that this condition was due to a partial or complete obliteration of the aorta just below the left subclavian artery. 142 cases had been recorded, 9 in infants and 133 in adults, 92 being males and 41 females; the majority had died between 20 and 40 years of age, but one case lived to the age of 92.

Pellagra.

Dr. G. A. GOLDEN, assistant medical officer, Norfolk County Asylum, showed a case of Pellagra in a female patient, the subject of chronic mania with dementia. The characteristic sun-burnt appearance of the backs of the hands and wrists was well marked, and there was a pustular eruption round the mouth, though the rash was not so marked as it had been the day before. Dr. GOLDEN could not account for the causation of the disease in this case, but referred to some similar cases which had occurred at Napsbury Asylum, and were recorded by the late Dr. G. S. Blandy in THE LANCET of Sept. 6th, 1913. Dr. Golden said that pellagra was practically unknown in England, except for its occasional occurrence in asylums.

Reviews and Notices of Books.

TRAITE DE L'IMMUNITÉ DANS LES MALADIES INFECTIEUSES.

By JULES BORDET. Paris: Masson et Cie. 1919. Pp. 720. Fr. 40.

IT is nearly 20 years since the appearance of Metchnikoff's "Immunity," and among the various later volumes on the subject which have been published none has covered the ground in quite the same broad way. The accumulation of details on the basis of the generalisations of Metchnikoff and Ehrlich has been tremendous; good, bad, and indifferent data have been heaped on top of one another into chaotic piles; many earnest immunologists have been too busy doing Wassermann's test in an improved way, or quarrelling about anaphylaxis to try to make out what it all means; it has been easier to give a dose of vaccine or to invent a fresh penny-in-the-slot diagnostic test. The inspiration of the fundamental theorems of the "nineties" has been dying away, and in the absence of any general ideas to replace them serology has drifted into what bears a tolerable likeness to a blind alley. It is plainly time to take a serious survey of the position, and Bordet's sane, sensible discussion of the facts and fancies of immunity is not the least of the many conspicuous services he has rendered to the study of infection. He provides a well-balanced review of immunity as a wide biological problem rather than as a by-path of medicine. Like many good books, it asks more questions than it answers, and carries with it that placid stimulation which is the comfort of the scholarly products of learned men.

The author has been in the thick of the subject from the beginning, and he weaves together the old facts and the very real progress of recent years into a tale so coherent that his readers will feel that the ground is strong enough to carry the fresh investigations which his pleasant narrative will stimulate them to undertake. Of course, the whole of "immunity" is not in the book; anyone who wants to will probably find the section on his own pet topic defective. No one could make a place for all the trees, real and sham, in his picture of this particular wood. But the picture, as a whole, is a very good one, and the new committee on biological drugs might well set it as a compulsory text for manufacturers of sera and vaccines.

There are some dreadful omissions—no index and no references to literature, and the table of contents is quite inadequate. The author remarks in the preface that a bibliography would have been too much trouble, and recommends those who want further details to hunt up the names (which he quotes, mostly with dates) in the *Bulletin* or *Centralblatt*. It is exasperating that no one finished off the book properly when the author got bored, for these mechanical defects greatly damage its use for reference.

MANUAL OF VENEREAL DISEASES FOR STUDENTS.

By Colonel L. W. HARRISON, D.S.O., M.B., Ch.B., London: Henry Frowde and Hodder and Stoughton. 1920. Pp. 360. 2s. 6d.

THE author has produced an excellent text-book for students. A "Manual of Venereal Diseases for Students" bears a very great resemblance to the "Diagnosis and Treatment of Venereal Diseases in General Practice," a work that has had an extremely favourable reception from the profession. We confidently anticipate that the Manual for Students will be as favourably received. Little has been lost in the process of condensation. Some useful chapters have been added. A brief description is given in Chapter IV. of the technique of urethroscopy and of the common lesions seen during such an examination. The importance of instituting the most stringent tests of cure in the case of gonorrhoea has been rightly emphasised. Chapter V. is devoted to the difficult subject of gonorrhoea in women, a side of venereal disease that was formerly neglected in many text-books, but the supreme importance

Although written primarily for the student, the Manual of Venereal Diseases will appeal with equal force to the general practitioner. It is eminently a practical work, and the amount of information it contains within its 360 pages is prodigious. When the small amount of knowledge of venereal diseases that has been demanded of medical examinees in the past is considered, the quantity of information set before the student by Colonel Harrison appears at first sight somewhat overwhelming. However, as the author states in his preface, the importance in medicine of gonorrhoea and syphilis cannot be easily overestimated. In the past the student's knowledge of these diseases has been totally inadequate, and it is only within the last few years that this has been apparent. A text-book of the quality of Colonel Harrison's Manual of Venereal Diseases should do much to repair this omission. The work should receive favour from student and qualified practitioner alike.

MODERN ANÆSTHETICS.
Second edition. By J. F. W. SILK, M.D. London:
Edward Arnold. 1920. Pp. 191.

This little book remains an eminently pleasant one from which the student can learn the elements of the theory and practice of anesthetics. The second edition has been kept to about the size of the first, although the latest developments are duly recorded. Dr. Silk had the advantage of acting as consulting anesthetist during the war, which gave him an unusually wide view of the practice of other men, and he has not failed to utilise the experience. His own preference, if he were asked for a routine anesthetic, appears to be for open ether with 3 per cent. chloroform, and he is fond of the Rendle's inhaler. We think he dismisses the management of abdominal cases a little cursorily, and that he might with advantage have added a paragraph on anesthetics in labour.

By W. COMPTON LEITH. London and New York:
John Lane, 1919. Pp. 222. 7s. 6d.

Hooker, the great English seventeenth-century divine, once wrote a panegyric on the Psalms which he had adapted from an exposition of Torquemada the Dominican, and part of it ran thus:—

"Herbal magnanimity, equable justice, grave moderation extend wisdom, patience undimmed, unwearied patience, all good necessary to be known or done or had, this one celestial medicine yields. Let there be any grief or disease . . . any wound . . . any ailment, for which there is not in this treasure house a potent, profitable remedy at all times ready to be found."

This passage always seems to us as applicable to the treatment of sickness and wounds as to the treatment of souls, and we think it more than probable that Mr. Compton Leith had it in mind when he wrote the very charming essay on a hospital which is now before us, and that all the more as his writing is saturated with seventeenth-century rhythms. His is a striking book, and any reader who has worked in a hospital will feel even more proud of having done so than he did before. Anyone, moreover—and there are all too many to-day—who has been a patient should feel grateful to Mr. Leith for having set out in noble words the feelings which he should possess but may be unable to express. The praises

of the staff, the consciousness that all who work in a hospital are members of a great fellowship, the parallel drawn between a hospital and a university, are finely imagined, and Mr. Leith's prose has exactly caught the elusive character of thoughts during sickness and convalescence—the reader is carried on as in a dream. Anyone who knows his classics will revel in the happy allusions to, and quotations from, the great writers of Greece and Rome, of which there are many—e.g., we have noted Homer, Lucretius, Virgil, Juvenal, Aristophanes, Theocritus, Thucydides, Æschylus, and the practically unknown Sulpitia, whom Mr. Leith is good enough to mention by name, fearing, we presume, and rightly so, that otherwise but few of his readers would know to whom he was referring. The medical profession owes a debt of gratitude to Mr. Leith for this "epanænetic"—to use one of his own words—of our calling.

By BEATRICE E. BEAR, M.B.A.P.T., Co-Principal of the Queen Alexandra's House Physical Training College. London: G. Bell and Sons, Ltd. 1920. Illustrated. Pp. 128. 8s. 6d. net.

College. London.
Illustrated. Pp. 128. 8s. 6d. net.

THIS book is, we presume, intended to serve as a class-book in the college of which the author is co-principal. For students elsewhere it is inadequate; for teachers it contains little that will help them. In the preface the Swedish system is described as physical grammar, and the British as the literature, of physical education. The text either pre-supposes a knowledge of the "grammar" or ignores its importance. Thus we read that games and sports are held to be necessary for all-round development, and yet no further reference is made to them. In the Swedish system, as we know it, dancing and games form an integral part of training, despite the fact that Sir James Crichton-Browne, in his introduction, stigmatises this system as "a drill." The author devotes much space to marching, but if this is supposed to replace the dancing of the Swedish system we frankly prefer the latter. To those unfamiliar with the technicalities of physical training and education a perusal of this book may be impeded by unfamiliarity with the abbreviations freely used. The method of illustration is good, though Figs. 17, 45, and 51 (apparently made from the same block) depict an almost impossible exaggeration of position.

By Surgeon-Major COOK, 1st C.B. Roy. Fus. London:
J. Hewetson and Son. 1920. Pp. 68. 2s. 6d.

By Surgeon-Major Cook. 1920. Pp. 68. 2s. 6d.
J. Hewetson and Son.

Surgeon-Major Cook has several volumes of verse to his credit, and we see no reason why this one should be the last, for his muse is not exacting. There is nothing very distinguished in thought or expression in the volume before us, but the author exhibits a technical facility which many bards might envy, and a definite point of view which many lack. We ourselves should have to be up very betimes to rhyme reason, puttees on, policeman, and squeeze on, with diocesan; and it is remarkable that this feat should have been accomplished, as we are assured it was, in hours snatched from slumber after a hard day's work. The two dozen poems in this collection touch on a variety of subjects from Heaven to the Royal Academy, and there is tough scientific stuff as well.

scientific staff as well.
 "Deaths by disease were, erstwhile, six to one
 Of wounds that slay;
 Disease now claims but one, to sixteen slain
 A better way;
 Nine out of ten given back, if six hours run
 And death has away;
 And those for whom Field Hospital is won—
 Ninety and five see day!
 Now, of each hundred wounded, at the Base,
 Full ninety-eight
 Reach home."

This is ingenious, even though pedantry may prefer the form in which the Registrar-General presents his statistics. The following line contains a heresy—

"Know the canker that lay burning at the
The best cankers never burn; they gnaw.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

THURSDAY, JUNE 3RD.

At a meeting of the Council on this date Sir JAMES HOSKIN, the Chairman of the Committee, submitted the *Report of Dental Education and Examination Committee*, which set out the returns of the professional examinations in 1919 and of exemptions granted by the dental authorities.

The PRESIDENT remarked that the tendency was increasing throughout all the Dominions to restrict the practice of dentistry to duly registered people; hence the mother country was being surrounded by a ring of self-governing Dominions which in this matter were in advance of her.

The report was agreed to.

Teaching of the Preventive Aspects of Medicine: A Significant Report.

Dr. MACKAY (chairman of the Education Committee) presented a Further Report by the Committee, which was made the occasion of an exhaustive discussion. The Report ran in substance as follows:—

The Committee first draw attention to a Memorandum by Sir George Newman, entitled "Some Notes on Medical Education in England,"¹ inquired to the Medical Curriculum, published by the Edinburgh Pathological Club;² and to the resolutions (1916) and recommendations (1909) which have been issued by the Council to teaching and qualifying bodies. After allusion to the fact that the term "Preventive Medicine" in the Circular Letter referred to the general education of the student in medicine, and not to special instruction in hygiene, it is pointed out that the Letter has had in view what may be called the pre-morbid state and the necessity devolving upon the practitioner of taking measure to eliminate influences affecting individuals professionally under his care which threaten to produce disease. The replies to the Letter received by the Committee indicate by their general tenor that present-day training does not concern itself sufficiently with the preparation of the student for the discharge of these important elements of the practitioner's duty.

The particular points raised concern primarily that portion of the teaching work which belongs to what is here called the clinical group of teachers, those who directly teach the student the practice of his profession; but as the earlier courses of study form together a graduated scheme of instruction designed to prepare the student to receive the actual training in his life-work, which he can only obtain at the hands of his clinical teachers, it is clear that the whole curriculum necessarily comes under review.

Since, under the special aspect of "Preventive Medicine" to which attention has been called, the recognition of pre-morbid and early-morbid conditions is essential, an accurate knowledge of the limits of normality in structure, function, and reaction in the human body is specially called for. This involves the special consideration of the teaching in anatomy, physiology, and pharmacology, and, on the other side of the boundary line, of pathology also. It is proposed to call the attention of the Council in the first place to certain general considerations which affect the question as a whole, and afterwards to deal very briefly with the particular aspect of the problem as it presents itself to each of the several departments. A full and open discussion will pave the way to ultimate solution. The ideal curriculum cannot yet be established: students begin too early, teachers are over-burdened, and special instruction is often carried out under adverse conditions.

The earliest aspect of medical training to which, under the name of "Preventive Medicine," the attention of the schools has been called represents the first stage of a co-ordinated system. This reply sent by the University of Oxford to the questionnaire may be quoted in this connection: "It is accepted that, generally speaking, whether from the clinical or pre-clinical standpoint, disease is more easily recognised in its later stages. As the student has to be taught the easier problems first, it follows to a certain extent in practical instruction disease must be taught in the reverse order of its development."

The consideration of the length of the curriculum would naturally be taken up in ordinary circumstances at the close of the discussion, but it is to be noted that none of the bodies which have sent in replies have proposed that the teaching period should be extended, although many speak of an overloaded curriculum. It is impossible to avoid some overloading, and discussion of it will be found convenient to take, in the first place, the distribution of the

work of training among the different classes of teachers and the allocation of each particular branch to its appropriate place in the curriculum. The clinical teachers, the sole instructors of the student in all that concerns the actual practice of the profession, are naturally deeply versed in the earlier sciences, but they practise a science of their own, and medicine is infinitely more than a mere combination of these. The principles of physiology, pharmacology, and pathology are united in one system working in an environment in which material, vital, and spiritual influences are blended and the student has to sort these out for himself. Until recently the clinical teachers undertook the whole work of medical training; but the vast increase of breadth and the multiplication of details in every department of medical study have compelled specialisation. It lies with the staff in medicine, surgery, and midwifery, and in all the minor branches of these departments to deal with the whole train of the student's education. The clinical subjects cannot be taught by their teachers without impairing co-ordination of the whole, when either the student or the teacher undertakes work for which he is not qualified. Sir George Newman's Memorandum points out, talking of the clinical aspects of anatomy, that the principal anatomical lessons should be introduced by the clinical teachers, and the student should be enabled to assist in dealing with the teaching of obstetrics and gynecology he takes a similar view.

The importance of the question of the proper co-ordination of studies has been specially emphasised in many of the replies. A full discussion of the subject is now fast becoming a necessity for the Hospital Medical School, and many interesting suggestions are proposed therein. The Edinburgh Pathological Club also deals exhaustively with the subject, and puts forward a detailed scheme embodying their proposals for the distribution of the several studies throughout the curriculum. One of their suggestions, to the effect that the student should begin his clinical instruction in his first year, will probably not prove acceptable to the majority of teachers. The work of the clinical instructors is already very severe, and the overcrowding of clinical classes with students wholly untrained, having no knowledge either of bodily structure or bodily function, even if it were to be adopted. The necessity for a co-ordination of studies is convincingly stated by Sir George Newman: "There must be reasoned effort to eliminate the unnecessary and the redundant, and to concentrate on the essential things "We may well reduce the data of botany and chemistry and begin with the preliminary studies in the form of a course on the structure and function of the human body, physiology of the nervous system, important detail; we may abolish a considerable amount of materia medica, and some pharmaceutical work; we may diminish the number of systematic lectures in almost all directions; and we may bring tutorials and our examination system into subjection." The consideration of the Council is invited to the general principles on which a reorganisation of studies should be based.

The ideal scientific method in training cannot be realised in entirety in medicine because of the circumstances in which the teachers must of necessity work. Subjects cannot be taught as progressive sciences, and the student is tempted to memorise, and not to understand. The vast increase in recent years of medical knowledge, the bringing to light of new facts, have augmented the difficulties of the teacher, and now there is grave danger that the scientific spirit and scientific methods of instruction may be forgotten, and that medical education may degenerate into an elaborate and laborious system of memorising. The danger is imminent; it seriously affects the future of medical research in this country. Some of the difficulties are unavoidable; others may be met. The more serious may be overcome if it be generally agreed that from the teachers in the earlier sciences, no more is to be expected than except the student should impart to their students an intelligent and scientific appreciation of the subjects which they profess. Doubtless they should, but always in pursuit of their primary objects, make use, as far as possible, of material which is the basis of subsequent clinical interest to the student, and employ such other knowledge as the branches of their work, but their real teaching should be confined to their own special spheres.

In a report made to the Council in 1890 the Education Committee, discussing the length of the curriculum and advocating its extension, the members made the following statement concerning the methods of examination: "The Committee would further remark, in view of the potent influence of methods of examination in determining methods of education, that it would be well to induce more attention to all the subjects extended and less time occupied by the written examination." This piece of advice seems to have been lost sight of, perhaps because it did not go far enough. Preparation for the written examination compels the student to do a great deal of work. Knowing that his answer, he expends much time and effort in compiling many details, of the relative importance of which he cannot judge, since his text-book seeks to give all without discrimination. The text-book is a danger to the student; it tends to crimp the mind, and the student's mind is cramped. The preparation for oral dissection and discussion with teachers; and so promotes the student's understanding and corrects his reading. The Council might well re-open the discussion of 1890 and consider the methods of examination.

The subjects of the present Inquiry are primarily concerned with clinical work, and to extend and improve the opportunities for clinical study. These may be realised by an extension of the clinical period, the addition to it of the earlier part. The former is a logical extension, the latter is a logical extension. The introduction of blocks to curriculum, the encroachment upon the clinical time. Clinical teachers prevent the encroachments already. The precise question may therefore be stated—Can the teaching of the subjects preparatory to clinical study be made more useful and adapted to his future student and, at the same time, be extended of the time-period of the whole curriculum, the addition to be exclusively devoted to clinical work, but consideration must be given to the needs and conditions of each of the earlier subjects and arrangements. It seems

¹ An Interim Report by the Education Committee on this subject was presented to the Council on Nov. 26th, 1919. It is printed in the minutes of the Council for 1919 (pp. 347-353). The Interim Report contains in an appendix a list of replies to the Circular Letter on the subject addressed by the Council to the teaching bodies. Additional replies received since the November session of the Council are embodied in the appendix to the present letter. The letter was addressed to 38 bodies in all; replies have now been received from 30 of them.

² THE LANCET, August 8th, 1918, p. 147.

³ THE LANCET, Jan. 26th, 1918, p. 147.

⁴ THE LANCET, Dec. 9th, 1916, p. 628.

measure of agreement should be reached on the general questions raised in the Report, the necessary modification may be to some extent simplified. Some detailed suggestions are put forward for discussion.

Preliminary Education in General Knowledge.—Much advantage would be gained were the minimum age at entrance raised to 14. The last two years of school life might be largely devoted to chemistry and physics, and a pass-certificate in these subjects of the higher standard might be accepted for some portion of the work in inorganic chemistry and general physics in the schools of medicine. This would naturally lessen the pressure in the first year of the curriculum and increase the time available for the study of anatomy and physiology. If the change be made it must be universally applicable. The teaching in all the earlier subjects is carried on and amplified by the teachers in all the later subjects, each employing some portion of the organized knowledge which the student has gained at simplifying it for his own special ends. The curriculum cannot be divided into separate compartments. All the teachers, for instance, who follow the biologist are adding to the students' knowledge of biology something which the biologist cannot himself give them. It is the duty of the later teachers to carry on the teaching of all the sciences which precede their own sciences in the curriculum. The courses in the preliminary sciences must of necessity be general in their nature. At the same time, wherever possible, the earlier teacher in selecting his material should make use of all which, without detriment to his special purpose, is likely to arouse the interest of the student in the practical applications of the subject throughout his later work.

Biology. Applied biology should be taught later to the student in the classes of anatomy, physiology, pathology, bacteriology, public health, and medicine. There is not much divergence of opinion among the replies as regards the teaching of this subject and the preliminary sciences generally.

Chemistry.—Inorganic chemistry, if taught in schools for two years to pupils above 16 years of age and certified by a pass-certificate of the higher standard, as has been suggested above, might with advantage replace the elementary course usually given in the schools of medicine. Organic chemistry, on the other hand, should probably, for the present at least, be retained in the curriculum, its study demands a closer application than the inorganic sciences is accustomed to give. The subject is taught in simplified form in physiology, pathology, pharmacology, medicine, and public health.

Physics.—The subject should include the elementary mechanics of solids and fluids, and the rudiments of heat, sound, light, and electricity. There is usually allotted to it in the curriculum a period of three months' study, lectures and practical. The subject forms an essential basis for every branch of medical study. The teacher naturally cannot specialise in physical therapeutics, radiology, and electrical treatment as is suggested in the Circular Letter; he has had to begin to deal adequately with the most general principles of the science. If physics were undertaken by the schools under conditions similar to those which have been mentioned in connexion with inorganic chemistry, there would not only be some slight saving in time, but a vast improvement in teaching.

Anatomy.—The subjects of anatomy and physiology of necessity overlap, but while recognising this, it is of advantage to treat them separately in the present inquiry, as their teaching methods differ widely in practice. No subject in the whole curriculum is so overlaid with detail as is anatomy, and its study and examinations constitute on this account a danger to the student. The reasons for this are sufficiently obvious. The teaching of embryology in the medical schools is of comparatively recent date; even in the near past teachers of anatomy have frequently been surgeons, and have naturally taught the subject, to a large extent, from the point of view of its clinical applications; from the obscurity of this custom medical teaching has not yet been fully emancipated, the subject itself demands the memorising of many details not yet explainable under scientific principles. Anatomy should be taught as a science, an end in itself, not as a clinical study but as a preparation for clinical study. It should be taught as far as possible on morphology and embryology, with constant reference to physiology, and should be illustrated as far as possible by demonstrations from the field of pathology which must be included in the curriculum. As the teacher is called upon to give the student comprehension of the development and structure of every organ of the body, not only must he deal in detail, as also arthrology, myology, the central nervous system, the lymphatic system, and the general distribution of peripheral vessels and nerves. Without continuous teaching in embryology few of the complications of his subject can be understood by the student. He should be taught the anatomy of the living body, emphasising in this the special bodily proportions, surface markings, the positions of the viscera, and the nature of the joints and muscles. This is the true interpretation of the term applied anatomy, which is used in two senses in the Circular Letter. On the other hand, the anatomical details which are in his teaching all that would naturally fall in with the general anatomy given by a surgeon in the clinical part of his course, and in direct contact with clinical cases, should not be separated in the ordinary anatomy class, even though the vast accumulation of minute details concerning the morphology and the general distribution of vessels and nerves is a formidable task. The work of the dissecting room, however, should be a part of the course, intended to familiarise the student with the details of the body, to let him see and handle, but not to be a tedious and uninteresting detail. It is a preparation for the study of clinical anatomy.

Physiology.—The teaching is usually extended through three terms, and is divided into three parts and in three practical classes. The first part is devoted to the study of general physiological principles, and the second part to the study of the functions of the various organs of the body. The third part is devoted to the study of the functions of the various organs of the body. The teaching of physiology should be a part of the course, intended to familiarise the student with the details of the body, to let him see and handle, but not to be a tedious and uninteresting detail. It is a preparation for the study of clinical anatomy.

lightening their labours, and would, at the same time, be likely to increase the practical value of the course to the student.

As has been suggested in discussing the teaching of anatomy, a practical course dealing with the employment of physiological methods in the study of the normal human being might with much advantage be instituted. This proposal is put forward and strongly pressed by Sir George Newman, who gives by way of example a specimen syllabus of the suggested course. It deals with the examination of the heart in action, blood pressure, and blood counting; with respiration and the determination of vital capacity; with the use of the clinical thermometer; with electric stimulation of muscles, muscle fatigue, and muscle reflexes; with the practical examination of sensory impressions from skin, muscles, labyrinth, and eye; and with the testing of the functional integrity of the various organs of the body. This may be named a course in applied physiology. To make room for the effective carrying out of a syllabus based on these or similar lines a considerable portion of the usual course in experimental animal physiology might advantageously be dispensed with. Oxford University has established, under the name of clinical physiology, a special course dealing with the physiology of man, in respect to the cerebrum, to dietary, to particular muscular acts, to some features of the human life-cycle, &c. Where this is not already done it might be well to follow the Oxford example. A number of replies to the Circular Letter approved the institution of courses of applied anatomy and physiology, as instituted at Middlesex Hospital.

Materia Medica, Pharmacy, Pharmacology, Therapeutics.—Sir George Newman considers that the two former might be largely dispensed with, that pharmacology should be taught in the laboratory as a continuation of physiology, and might be limited to the study of the action of some 40 to 50 drugs, of the most important of which he gives a list. The instructor in therapeutics should be a clinical teacher well skilled in pharmacology, and the study of the subject should be carried on in the wards and out-patient departments. The teaching should deal not only with the effect of drugs, carefully watched from day to day, but with the influences of other remedial agencies, as dietetics, rest, hygiene, hydrotherapy, electric treatment, Finsen light, X rays, radiotherapy, remedial gymnastics, thermotherapy, climatology, open air, massage, and psychotherapy. The teacher should also pay special attention to the actions of vaccines, antitoxin serums, thyroid extract, and salvarsan.

Pathology and Bacteriology.—Many of the bodies have taken no notice of these subjects, but almost all which have dealt with them in their replies are in agreement that bacteriology is sufficiently taught. In pathology some admit deficiencies in the teaching, particularly as regards etiology and the recognition for preventive purposes of the earliest indications of disease. Others in this connexion state that instruction in clinical pathology is given later in the curriculum. The exceeding difficulties of procuring autopsies in Ireland is noted from University College, Cork. Sir George Newman, pointing out that pathology, broadly speaking, is "Medicine, the Study of Disease," advocates the establishment of pathological institutes, properly staffed, in connexion with the teaching hospitals, and a remarkable memorandum from Guy's Hospital covers this and similar ground. The course outlined by Sir George Newman is virtually clinical pathology, and deals with a most important aspect of the subject which has hitherto been largely neglected; it should be continued to the end of the curriculum, and should be examined on in the final or qualifying examination along with medicine, surgery, and midwifery. There should be, however, a precedent course on the general principles of pathology, which, however, might be materially reduced in length if clinical teaching were systematised. Comparative pathology might also be dealt with in the laboratory of the medical school or university.

Normal Psychology.—Fourteen bodies have given attention to the interrogation concerning this subject, and the majority hold that some instruction should be given by the lecturer in mental diseases as a prelude to his course. Few regard the subject as falling within the domain of physiology.

Public Health, Hygiene, Preventive Medicine.—On this subject, variously designated among the teaching bodies under the titles given above, no one can speak with greater authority than Sir George Newman, and the attention of all the schools is called to the chapter devoted to it in his Memorandum. After discussing the general aspects of the teaching, he gives in detail, in an addendum, a statement suggesting the scope of the teaching required by the ordinary student. "The following statement is intended to be suggestive of the nature of the preventive medicine which should form an integral part of the warp and woof of the medical curriculum. Certain sections should no doubt be incorporated in the course of hygiene for medical students; other sections such as physiology, pathology, medicine, surgery, or obstetrics, which in greater or less degree is the case at the present time in some of the student's curriculum as a whole, nor even to inflate the subject before or after graduation, shall receive proper instruction in these matters (some of which are at present almost wholly ignored), and medicine. He must understand the preventive aspect of medicine, surgery, and obstetrics. The statement, which has been advisedly kept simple and elementary, is designed for the medical student, and not for the student reading for a diploma in public health. A consideration of the daily needs of the medical practitioner in to justify the contents of the statement, the subjects of which should be illustrated and taught, as far as practicable, by means of demonstration or example."

The statement contains 21 sections, and specifies in detail the contents of each. The subdivisions may be omitted here, and the headings alone quoted: (1) meaning and scope of preventive medicine; (2) administrative machinery of preventive medicine; (3) maternity; (4) medical care of infancy; (5) the young child; (6) school hygiene; (7) personal hygiene of adolescent and adult; (8) the dwelling house; (9) the housing question; (10) food-supply; (11) milk-supply; (12) water-supply and the public health; (13) alcohol and alcoholism; (14) infection and infectious diseases;

(15) principles of epidemiology; (16) diseases of animals communicable to man; (17) the prevention of infective disease; (18) vaccination and antitoxin inoculation; (19) prevention of other forms of disease; (20) vital statistics; (21) health insurance; (22) nuisances and dangerous trades; (23) industrial hygiene; (24) medico-sociological questions in relation to medical practice.

The course will naturally fall into the final year of study. At first sight it may appear to be unduly extensive, but a large proportion of its contents will already be a matter of ordinary curriculum. It has engaged the attention of the student in other classes. Thus it will serve a double purpose: (1) the instruction of the student in the methods and results of recent work in public health; and (2) the focussing of his knowledge, gained in many departments of study, upon the preventive aspects of medicine.

Surgery, Medicine, and Midwifery.—It is proposed to postpone the consideration of the teaching arrangements in the great clinical subjects. In discussion much will depend on the reply to the question whether or not the teaching of the earlier sciences can be so modified as to give the clinical teachers a more adequate opportunity than they possess at present of satisfactorily overtaking their subjects. In the medical curriculum the two groups of necessity react on one another. Further, it is not proposed at the present stage to issue any special recommendations. Before any change can be made in the curriculum, the curriculum itself is essential, and to the possibility of that attainment the expressed opinion of the Council is probably the best guide. In view of the important issues involved, it is hoped that the various points raised in the Report will be fully discussed in the course of the session.

The Report has been prepared by the Chairman after an analysis of the replies received from the teaching bodies. The Committee is of opinion that the questions which have been raised involve the revision of the whole curriculum in medicine, and suggests that the Council should remit to it for further report the consideration of the methods under which the necessary revision may best be carried out.

Dr. Mackay, in presenting the Report, outlined the history of the movement towards an improved curriculum, remarking that the diagnosis of morbid conditions was not even to-day receiving the instruction and the attention it should. The matter needed long and careful consideration, but the present was an opportune time to make a beginning. The curriculum had been divided into two groups of subjects, the chief being the clinical, and, secondly, all the other subjects which could be regarded as ancillary to them. The real teacher of medicine was the clinical teacher, all the others having as their function the preparing of the student's mind for the reception of what would constitute his life's work. With regard to the preliminary education of the student, the Report suggested that the Council should consider whether there would be an advantage in not allowing a student to begin his medical course until his eighteenth year, thus allowing him to receive the previous training which would fit him to receive the instruction for his chosen work. In all the other great countries the commencing age was higher than here. If the age were raised the student might be called upon to pass a more extensive preliminary, and possibly physics and inorganic chemistry might be included in his school work; thereby greatly relieving the pressure in his first medical year. An important point was the proper co-ordination of the different subjects in the curriculum, not only to avoid overlapping, but with the view to seeing that the student received instruction in any one subject at the time he was interested in it and was able to benefit most from it. For instance, many parts of clinical surgery could be taught with anatomy, for in the absence of a clinical interest and application, anatomy was apt to be a mere matter of memorising. It could advantageously be largely taught on the living body. In physiology too much attention was paid to minute experimental details; there should be rather a concentration on the normal physiology, including percussion, heart sounds, and estimation of blood pressure. Pathology, he held, might be divided into general and clinical. It had been suggested that the ground covered in pharmacology could be much reduced by paying particular attention to 40 or 50 of the more important drugs, thereby reducing much of the memory work. Sir George Newman, in his Memorandum proposed that pharmacology should be taught in the laboratory as a continuation of physiology, together with other subjects such as hygiene, dietetics, hydrotherapy, and electrical treatment. Dr. Mackay asked the Council to discuss the report fully.

Dr. McVAIL seconded.

Dr. NORMAN WALKER spoke of the importance of the report, and on his suggestion the Council resolved itself into Committee to allow of an unfettered discussion.

Sir NORMAN MOORE reminded his colleagues that their object was to lay down the parts of knowledge which were necessary to be acquired before men were considered fit to practise their profession. That predominant function had been somewhat lost sight of in some of the discussions at Council meetings. All sorts of reasons had been advanced for either adding subjects to the curriculum or taking subjects from it, or modifying the degree of knowledge required. It must never be forgotten that the element of time was an important one; otherwise a man might go on until he was 35, and still have some subjects left to master. In present conditions in the country and in practice, men should not be required to study more than five years in order to qualify. How much time ought to be given to medicine, surgery, and midwifery? With regard to preliminary education, he laid stress on whether the youth had received such education as to make him wish to enter a university. With reference to chemistry, physics, and biology, he would like to hear that question discussed first from the point of view of what the mind could retain. Men in practice seemed usually to have retained but little of what they had been taught about them. Formerly, biology as a subject was not required at all. Anatomy and physiology were most practical subjects, and they should be taught with a definite relationship to professional needs during the whole time. He would like to see anatomy so taught as to use up as little as possible of the five years, while at the same time having a very definite effect on the mind of the student. Moreover, the scarcity of bodies made it necessary to have a change of method in pursuing this study. There was a tendency to allot to physiology a bigger place in the curriculum than it deserved, and he agreed that leading principles should be concentrated upon. He implored the Council to keep always in mind the producing of a thoroughly trained medical man.

Sir JAMES HOPSDON agreed that the Council had to legislate for the minimum, and that any recommendations made were, at this stage, no more than suggestions. It would be conceded that men were not being turned out as practitioners in accordance with modern notions, especially on the subject of preventive medicine. The chief reason was the tendency to encroach on the fifth year of study, and to teach earlier subjects in more or less "water-tight" compartments, as if the students were going to be specialists in each one. His view was that there should be fewer lectures and less didactic teaching, and the giving of more tutorial and practical instruction. The student was burdened with examinations throughout the whole of his course. He thought the records as to the way the student had been doing his work should be available at the examination; it would tell the examiner much more than he could ascertain by ten minutes of questioning. A point which members of the Council had to ask themselves was whether the earlier subjects could be somewhat curtailed, so as to give more time to those embraced in the Finals, or whether there should be a rearrangement of subjects to secure better co-ordination.

Sir JOHN MOORE said he had felt in recent years that the five-year curriculum had been essentially a retrograde step so far as the attainment of a knowledge of medicine was concerned. The prime matter in the mind of the student was as to how he could pass his examinations. But clinical work could not be learned from the lips of a teacher. In his experience there had recently been a marked falling off in actual direct clinical work in the wards, and the following up of cases to see the results of treatment. To have a multiplicity of examinations, in his view, was wrong. The place for the ancillary subjects was the school, and he agreed with those who would postpone the commencement of medical study to at least the seventeenth year.

Sir GEORGE NEWMAN reviewed the whole subject. He warmly agreed with Sir Norman Moore that in considering the medical curriculum members of the Council had to consider the product, which should be a clinical product. The question was, What kind of medical man did the times require for the immediate future? The

new demands which the State had made on the medical man must be faced. Public health was the communal aspect of preventive medicine. The State was now making demands on two-thirds or three-fourths of the profession, as against the former demand of one-fourth. The demands were, in the main, clinical. No greater mistake could be made than to contend that State medicine was non-clinical; he would view with great concern any attempt to divorce State medical work from clinical work. He wished to put in a plea for a recognition of the importance of the preliminary science subjects; there should be the desire to strengthen rather than weaken them. The practitioner needed to be more biological, more chemical, rather than less; more, rather than less, ready to apply to his work the great principles of physics and chemistry. The time was now more than ripe to consider a broad and generous reform. He thought the curriculum should be lightened at both ends. At present the student was not being given time to think or digest knowledge—time for real study; it was a rush from the beginning of the first year to the end of the fifth. True culture or true learning could never be acquired on the principle of a general scrimmage. His second suggestion was that there should be an attempt to co-ordinate the preliminary scientific and intermediate subjects with each other and with the clinical, and to make them much more applied. Thirdly, the Council should consider a reorganisation of clinical teaching, so that the student could have of the best, not the residuum; and that the teacher should not give of his best to his practice, but to his university. Fourthly, he wanted to see provision for the student to have an ampler education in venereal disease, tuberculosis, maternity and infant welfare, orthopaedics, and mental diseases—he advisedly omitted mention of specialities. Many men were being turned out of the medical schools unequipped in the subjects he had named. In the combat with venereal disease, for instance, no solution would be found until the mass of practitioners were equipped to deal with that disease; its roots were too deep, and the provision of clinics was not a solution. Much the same could be said about the others. His fifth point was that there should be some kind of post-graduate equipment and education, both to assist towards specialisation and to continue the ordinary medical education of the practitioner. His last word in debate was that there should be reformation of the examination system; it should be made to follow the training, not to decide it and lead it. It should include the process of preparing the student, should be made not a hazard, but a certainty. This would alter for the better the whole of the student's outlook; it would bring the student to his books, to his specimens, to his cases and his bedside work in an entirely new spirit.

Sir GILBERT DARLING said that at Birmingham they had arranged that in all the categories except medicine a student should carry his markings with him, the exception being due to the fact that in medicine an external examiner cooperated, and he could know nothing of the student's previous work. He mentioned the reference in the Report which implied that the future general practitioner is possibly not receiving such a training as will qualify him to diagnose and treat disease in his very earliest manifestations; such a passage might have been taken from contributions which one had become accustomed to in the *Times* lately. The tendency was to throw on the general practitioner the most difficult part of the practice of medicine. Would the education which could be given to the student enable him to recognise with certainty the earliest beginnings of disease? That needed the best possible teaching which medicine and surgery could provide. He thought weeks should be devoted to the anatomy of the brain and spinal cord. Nothing could be cut out of the clinical curriculum as it now existed, but it was sure to be added to. This was not the time to ask people to devote great additional expense to training; but if the number of candidates for the profession were to greatly increase, then the curriculum could be easily extended.

Dr. NORMAN WALKER moved the adjournment of the debate.

FRIDAY, JUNE 4TH.

Report of the Pharmacopœia Committee.

Sir NORMAN MOORE submitted this report and pointed out its main provisions, saying that the sales of the Pharmacopœia to the end of May, 1920, had been 1582 in seven months, or 36,852 since the date of publication. The Committee had agreed to approach the Government with the suggestion that a public institution should be established for the official standardisation of such remedies as serums and vaccines. The Minister of Health had now taken the matter up and appointed a special committee to advise him on the measures which should be taken. Sir Norman Moore made grateful reference to the help which Sir Nestor Tirard had rendered to the Committee over a long period.

Sir JOHN MOORE seconded the resolution for the adoption of the report and it was carried, as was also a proposition to appoint Sir Nestor Tirard as secretary of the Committee at a due remuneration.

Resumed Debate on the Report of the Education Committee.

Dr. NORMAN WALKER, in resuming the debate, said he had recently returned from the United States, where there was no General Medical Council, and where every university was free to do what it liked in the matter of medical education, always, however, keeping in view the passing of the examination, failure in which was held to be to the discredit of the university. They were also under the voluntary influence of an Association under which schools were classified. The success of a school depended on its remaining in category A. One effect of this classification was, that whereas formerly there were 439 schools, the number was now 89, of which 72 were classed A. The standard in these latter was high, and the professors in them must be full-time professors. The association between the hospitals and the universities was, in most places, very close. To qualify for Class A schools, students must have had four years of high school education and two years collegiate education—some schools required three years. All Class A schools included chemistry, physics, biology, and a foreign language. The medical curriculum extended over four years, but the student was not admitted to the examination of the National Board until he had served one year as an intern in either a hospital or a laboratory. The supply of bodies there was so good as to allow half a body for each student to do his anatomy on. Much stress was laid there on embryology, and in anatomy great attention was paid to neurology, and this was carried well into the third year. The same was true of bacteriology and of biochemistry. Most of the schools had a whole-time professor of biochemistry. The laboratories were beautifully equipped, and money seemed to have been readily forthcoming for them. He was much interested in one of the classes on operative surgery. The class was divided into sections of 80 students, and there was a rotation of duties as surgeon, assistant surgeon, anaesthetist, and family doctor. Should the surgery—on the cadaver—be voted unsuccessful, an appointed coroner held an inquest. And in that land of liberty the students were more orderly than here, more definitely responsive to authority. Great care was exerted in admitting students, hence the best material was obtained for securing good results. There were physicians and surgeons on the "whole-time" staff, but they had consulting rooms in the hospital and received their private patients there, making a good income thereby. These professors had all the resources of the hospital at their disposal. Dr. Walker said he was a great believer in the value of good lectures, though there were subjects on which the number of lectures was overdone. He found in the States an amount of co-operation between the university and the city which was most interesting. The city of Cincinnati supported its university, and was responsible for the salaries of the university medical faculty and for the whole of the medical treatment of the city. All the special hospitals were in association with the teaching hospital, and the students had access

to all of them. Dr. Walker thought chemistry, physics, and biology should be taken before the student commenced his study of medicine. There were now too many medical students, and there would soon be far too many doctors; and the taking of those three subjects quite early would enable men to find out soon if they were not cut out for a medical career. He would like the medical curriculum to be of four and a half years' duration—he would even be content with four, because there was a way of lengthening the curriculum by making the terms longer; 32 weeks for study out of the 52 was not a large proportion. The session at Minnesota University went on all the year round, and the holidays accounted for only seven weeks. This would mean more teachers, because the same teachers could not be expected to continue during the whole year. Certainly there should be more paid professors' assistants. Also the present limitation of hours for teaching in hospital should be removed. He regarded the "intern year" as a splendid thing. We had many hospitals where no teaching was done, yet nothing so raised the status of a hospital as to make it a teaching institution. In America medical societies arranged for professors in specialties to attend the town at definite dates, when practitioners brought their cases for consultation and instruction. This idea was welcomed and was growing. He concluded by expressing a warm eulogium on the Mayo Clinic.

Dr. RUSSELL WELLS spoke of his 17 years on the Senate of London University, and said the time had fully arrived for taking stock of the position in regard to medical education, and for ascertaining wherein their deficiencies lay, at the same time preserving our undoubted excellencies. The literary standard required in the preliminary examination for medicine—modified second class College of Preceptors—was very low, so low as to constitute a disgrace; the standard accepted was refused by the solicitors, accountants, and even auctioneers and estate agents, yet it was the portal of a profession which demanded high intellectual attainment. He thought students might be encouraged to enter hospital at the age of 18. It was the first year which determined the attitude of the student towards his work. He strongly urged that the various subjects should be taught from the standpoint of their application to medicine. And it was not desirable to make one series of lectures do for two sets of students. Chemistry should run through the whole course, and he would like to see some form of biological chemistry in the final examination. The same applied to anatomy and physiology.

Dr. McVAIL expressed the hope that Dr. Norman Walker would publish for the benefit of the profession what he had learned as to American methods. When he, the speaker, first moved in this matter it was to ascertain whether the practitioners of the future were being taught to fully realise the opportunities lying before them of dealing with the early stages of disease. The question of lengthening or otherwise modifying the curriculum could very well be considered in a practical way by a committee of this Council, for their body embraced specialist teachers in the different branches, and they could be given power to coopt outside help. The subject was the most important which had come before the Council for a quarter of a century.

Sir ARTHUR CHANCE considered that the preliminary education was very important; if a man was well educated he had already advanced one-fourth of the way towards being a practitioner. Examination would not make him worthy, any more than measuring a man would make him taller. The teacher had so far not received much attention in this discussion. He did not know a professor in Ireland who received half as much as he could make by private practice. It must be remembered that the five years' course was the minimum requirement, but the average time taken to qualify was: in England, 6½ years; in Scotland, 5 years 8 months; in Ireland, 5 years 11 months. He considered the first need was for a weeding out of the curriculum, to take out the things least useful and valuable, and concentrate on real essentials. Pro-

liminary science should be taken before commencing medical subjects, but there was a danger of that science being taught in a perfunctory manner. It need not be very deep, but, so far as it went, it must be sound.

Dr. LITTLEJOHN said this Council was largely responsible for the present position of medical teaching in the country, because whereas in 1869 it gave a lead as to what ought to be done, it had not since moved with the times, but had rather kept back medical teaching as desired by those who would have made progress; it had shown no elasticity. It would be an advantage to dispense with the water-tight compartments. For instance, anatomy should not necessarily be finished by a certain time. He objected to waiting two or three years for the change; in Edinburgh they were waiting for a lead from the Council so that they could establish certain professorships, such as one in biochemistry. Nor would he slavishly sit at the feet of America in this matter, as at one time we did at the feet of Germany; he contended that the merit was not all on one side. He had long advocated an intern year for students, the value of which he pleaded.

Dr. MACDONALD spoke from the standpoint of the general practitioner, and declared that a number of men were sent out as general practitioners who were not capable of fulfilling the duty required of them, and that failure he attributed to their training not having been practical enough; they were not taught the interdependence of the various subjects and their general applicability to medicine. There were certainly not enough professors and teachers; their numbers ought to be quadrupled.

Dr. DEAN said all felt that the present curriculum was badly overcrowded; something must be omitted and other means of shortening carried out if any attention at all was to be given to new subjects. He hoped any future questionnaires to the teaching schools would raise the point whether any course could be omitted altogether. At present a disproportionate amount of time was spent in the lecture-room, and there was a good deal of overlapping. With regard to pharmacology and therapeutics, Sir George Newman considered that teachers should be skilled in and be able to teach the values of dietetics, rest, hygiene, hydrotherapy, electric treatment, Finsen light, X rays, radiotherapy, remedial gymnastics, thermotherapy, climatology, open air, massage, and psychotherapy, as well as giving special attention to the actions of vaccines, antitoxin serums, thyroid extract, and salvarsan. It required excessively able teachers to deal with all these. If it was intended that these subjects should be dealt with in one course, the arrangement was an unnatural one. In every medical school he would like to see a committee of coordination, at which the various teachers would meet and learn each other's scope. In chemistry the medical student should be taught in a separate class; not medical chemistry, but chemistry for medical students. If there was to be any curtailment, he asked that it should not be at the expense of chemistry and physics; it could be done at the expense of zoology and botany. If men did not preserve their knowledge of physiology in later life, that seemed to show that their teaching had been too theoretical. With regard to the final subjects, there was room for much more collaboration and co-operation between the teachers in pathology, medicine, surgery, and gynaecology; and he thought more attention ought to be given to morbid physiology.

Professor THOMSON asked the Council to keep carefully in mind that it was the minimum they had to settle.

Dr. CATON thought there were signs that more men would try to enter the profession than there was room for. The Council should ensure that every portal of entry to the profession should be of sufficient type, so that all who passed through it should have the capacity to take due advantage of the subsequent training. He lamented the almost entire disappearance of classical studies in many cases. Greek and Latin were of great importance in developing mind and character, even if only pursued moderately. In the teaching of chemistry, physics, biology, and botany, those subjects were now so extensive that the teaching of them to the medical

student should be directed always to his life-work. He hoped the preliminary examination would be so framed, and that cramming would avail less than ever.

Sir JAMES HODSDON expressed his appreciation of the admirable Report. He discussed the two forms of anatomical nomenclature being used, and urged that there should be a uniform nomenclature on the subject for all English-speaking peoples. There was a strong feeling in many quarters that the old system should not be departed from.

Dr. DIXON said he held very strong views about the nomenclature used in anatomy, but so strongly did he feel the need for uniformity that he would be willing to adopt terms he did not like in order to secure it. He hoped the final report on the matter now under discussion would be in such a form that it could not be thought to hinder the universities from making suggestions, because the conditions in different places varied enormously. In regard to anatomy, there was need to stimulate the interest of the student in every possible way; therefore the Council should not insist on that subject being taught as a science in itself.

Mr. E. D. TURNER said the student must be taught to think for himself; the knowledge which a man got for himself was the knowledge which would abide with him. He had a great belief in the value of a classical education. Unless the general practitioner received training in preventive medicine he would fail in the never-ending fight against disease. Patients suffering in the incipient stages of disease always went to the general practitioner first, and it was he who went into patients' homes and knew their conditions and surroundings.

Professor T. W. GRIFFITH agreed that the study of chemistry, physics, and biology should be transferred to the school, but there the teaching should be done by those who were fully competent for the work. The lectures should be very valuable, and they should contain matter which was not to be found in the ordinary text-book; he had a good deal of contempt for mere text-book dissertations. He would like to see the number of lectures on medicine reduced and their quality raised; the lecturer should know months in advance what was expected of him, so that he could give careful preparation. Much had been said about preventing overlapping, but there might be overlapping of a good kind, and the teacher should not mind kicking over the traces a little. The lectures on anatomy and physiology should be illuminated by references to practical points.

Professor LEATHES said that after a long discussion at Sheffield the teachers of anatomy and physiology had offered to shorten the amount of time they had required at the beginning of the course, and the net result of the suggestions was that the student would have three years to devote to clinical work. During the third and fourth years there would be a certain amount of laboratory instruction. Their proposals involved the breaking down of the rigid boundary wall between anatomy, physiology, chemistry, and physics, and they had instituted a chair of pharmacology, the recipient of which would be whole-time, except in so far as he had duties in the hospital.

Sir JESSIE VERRALL said the Council must beware of aiming at a standard which the public would not be prepared to accept; and, on the other hand, it must always be remembered that the Council had to legislate for a progressive science. The men turned out for practice should have a clear recognition of the limitations of their own knowledge, so that they should not essay to deal with what was beyond their competency.

Dr. ABRAHAM expressed his warm support of Sir George Newman's contention that the teachers should give the student marks for his work throughout his career; that in itself would help to a better appreciation of the candidate's capacity, and would largely obviate the nervousness from which so many suffered.

The President read to the Council the only document which it had to guide it on this matter; and this stated "that the period of study shall be a period of bona fide study of not less than five years," and it proceeded to enumerate the subjects. There was nothing of a "cast-

iron" nature in that regulation. It had stood as an instruction since 1893.

He then reported from Committee to the whole Council, and, on the proposition of Dr. MACKAY, the following recommendation was submitted:—

"The Committee begs to submit to the Council the foregoing report on 'the teaching of the preventive aspects of medicine,' which has been prepared by the chairman after an analysis of the replies received from the teaching bodies. The Committee is of opinion that the questions which have been raised involve the revision of the whole curriculum in medicine, and suggest that the Council should remit to it for further report the consideration of the methods under which the necessary revision may best be carried out."

Sir NORMAN MOORE seconded, and it was agreed to, and in addition that the Committee coopt such members of the Council as it was felt could render it service.

It was further agreed that copies of the report be sent to the various schools, and such additional copies as might be asked for up to ten.

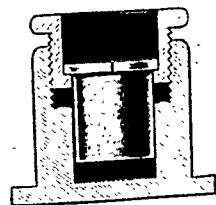
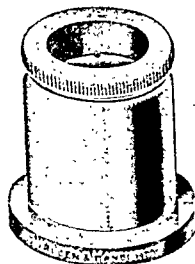
Colonel King was reappointed Registrar, and the President was authorised to deal with the work of the Council until the next session.

New Inventions.

MECHANICAL CELL FOR MICROSCOPING CEREbro-SPINAL FLUIDS.

THIS device makes possible the scrutiny of every cell and bacillus contained in a column of cerebro-spinal fluid 1 cm. in depth.

A cover-glass (not too fragile) is placed at the bottom of the cell (see diagram), which is then filled to the brim with fresh cerebro-spinal fluid. After an hour or two the cells and cocci will have sunk and will be lying evenly on the cover-glass. The milled head is then gently unscrewed; this causes the cell to rise, creating a vacuum beneath it. Provided the screw



is air-tight (a trace of vaseline on the thread ensures this), the supernatant fluid falls through the little channels provided into the well below the cell. A few more turns of the screw detaches the cell from its base, and if it is then placed in front of the fire its wall will drop, leaving the cover-glass on a little altar of brass, where it quickly dries. The ordinary routine is then followed. In staining no heat should be applied lest some cells be washed off.

In collecting the fluid the first blood-stained portion should be rejected. If the cerebro-spinal pressure exceeds 12 inches by my cerebro-spinal manometer (Messrs. Allen and Hanburys), meningitis or tumour or abscess is almost certainly present. Even if the cells are not counted, by the regular use of this apparatus an accurate quantitative impression of the number of cells is obtained.

The apparatus is specially useful in cases where tubercle bacilli are, or may be, present; for in tuberculous meningitis a spider-web clot often forms which entangles the tubercle bacilli, and an attempt to spread out this clot thinly inevitably ravelled it up into a tangled mass which cannot be scrutinised microscopically. If the cerebro-spinal fluid looks turbid to the naked eye, it will need dilution before using the instrument.

Messrs. Allen and Hanburys supply the instrument not only as figured above, but also the earlier model, shown at the Neurological Society, of which the design and action are more self-evident.

My thanks are due to Mr. F. M. C. Lewis for the excellent design.

FRANK C. EVE, B.A., M.D. Camb.,
F.R.C.P. Lond.

Roll.

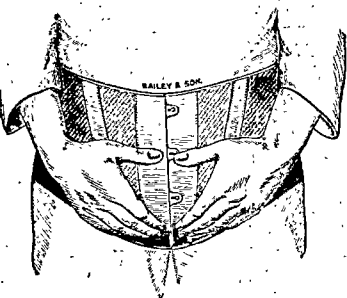
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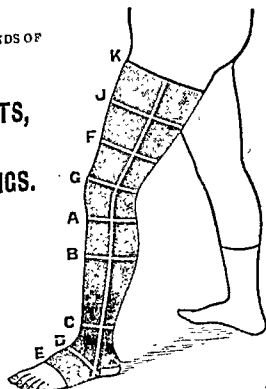
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Four Authorities:

1. "I have very clear evidence of the fact that those who develop such diseases as are mentioned in the following list have suffered for some time from chronic intestinal stasis: non-specific arteritis, obliterans, angina pectoris, rheumatoid arthritis, Still's disease, tubercle, exophthalmic goitre, adenoma of the thyroid, Addison's disease, Raynaud's disease, diabetes, ulcerative colitis, microbial cyanosis, dementia praecox, pernicious anaemia, disseminated sclerosis, paralysis agitans, infective endocarditis, and in many instances alcoholism and the drug habit, and numerous forms of skin disease."

Sir _____

"The Lancet"

December 20th 1919. pp 1123.

2. "Liquid Paraffin, or Russian Mineral Oil, is the agent which, by common consent, is pronounced the most satisfactory in the treatment of these cases." i.e. Intestinal stasis.

W _____ S _____ B _____

A.M., Sc.D., M.D.

"Chronic Intestinal Stasis"

Womans Medical Journal

January 1914.

3. "In the New Utopia, where stasis will be regarded as a sin more sinister than sedition, and surfeit more unseemly than schism,.....the function of the police will be the purveying of paraffin....."

Dr _____

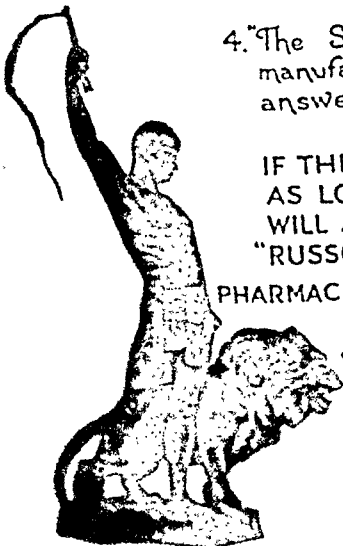
"The Operative Treatment of
Chronic Intestinal Stasis" (1918)
pp. 263.

4. "The Silvertown Company, in particular, are manufacturing a fine standard product which answers all B.P. demands perfectly."

"The Lancet" 2nd October 1915.

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THE LANCET.

LONDON: SATURDAY, JUNE 19, 1920.

Hospital Sunday, June 27th, 1920.

THE annual collection of the Metropolitan Hospital Sunday Fund will take place on Sunday, June 27th. It is not necessary to press the urgency of its appeal upon our readers, for they are fully aware of the conditions of narrow margins, of debt, and of mendicancy under which the voluntary hospitals are carrying on their work. The general public is equally alive to the position, the closure at the National Hospital for Paralysis and the threat of similar disaster at the London Hospital only putting accents upon a familiar text. Alas! the familiarity of the text is a source of weakness, not of strength, and we beg our readers not to assume that an evil because of its long life is necessarily eternal, and that the aggravation of an evil is no measure of its incurability. All know what the situation is in which the hospitals find themselves, and upon its causes there is no need to dwell. The ordinary householder and the members of his household are not likely to forget the risen and rising price of the necessities of life, and the daily difficulty felt by many in trying to make both ends meet. We cannot ignore that difficulty, but we ask that it should not close any purses to the hospitals, but rather that it may stimulate sympathy. The anxiety which oppresses the hospitals weighs in like manner on those responsible for the care of the helpless sick and disabled, and it is to the sympathy of persons able to appreciate the situation that appeal can be made with greater assurance. And if the hospitals, through the stress of the times in which we live, lose perforce some of their old patrons, they should gain new ones, on whose ears the claims of generosity must fall loudly. There are newly rich as well as newly poor. The war, and the manufacturing and commercial enterprises which it brought into being, have left many to whom high prices do not make as much daily difference as to their neighbours. Those richer in 1920 than they were in 1914 are sometimes reproached with the fact. The needs of the voluntary hospitals offer a splendid opportunity to show that such obloquy is undeserved. The new rich can prove that in the struggle to become wealthier they have not forgotten the days when they were poorer, and that they are able to feel for those who in the humbler classes of the community can only find relief in the hospitals when struck down by serious physical disability. It has been said that old names have passed out of the lists of subscribers to hospitals through death and the circumstances produced by the war, and that the names of those who are now for the first time able to give freely in charity have not taken the place of these worthy predecessors. That is a serious charge against men and women whose freshly acquired wealth must almost inevitably place them in positions of influence in the community. They are called upon to set an example to others, and an example of generous

charity has ever been one which has had wide influence for good.

On Hospital Sunday the appeal is for the worthiest object that any man's charity can have. Money is asked for to save from death and to restore to health those who without the aid of the hospitals would have to meet the grim alternative of dying and leaving their families to face the world unprotected. It is to be given without expectation of repayment, but it need not be forgotten that the generous giver may some day have his reward. In his hour of need, for himself or for his wife or child, he may require the help of the highest medical or surgical skill. It will be knowledge acquired in the wards of a hospital which will come to his aid; it will be science developed in the various departments of a hospital which he has helped to maintain that will enable his disease to be traced to its source and combated. The working classes will surely appreciate these facts, and we take this opportunity of recording their increasing support of the voluntary hospitals. But while no one denies that some sections of the working classes have profited more than most of their fellow subjects by the war, and that the general higher wages may allow of a better scale of living among these than they enjoyed before, do not let us forget that their margin, with increased prices, is small, and that the raised conditions are not only their right, but necessary to the improvement of public health, which, God knows, called loudly enough for it. We are a long way from eliminating poverty from our midst. We are a long way from possessing a working class able to pay for such aid as the hospitals can give, even though workers may be more prosperous than their forefathers were in the days when the hospitals were founded. The question of State control is not here under discussion; on this occasion we are speaking in behalf of that grand voluntary system, the supporting and supplementing of which is, we know from the best authority, the design of the Government and an integral feature of future legislation. The Report of the Consultative Council on Medical and Allied Services to the Ministry of Health indicates the direction of medical thought and intention, while the endorsement of the ideals contained in that document by the public press shows that the medical view and the popular view are one in intention. The voluntary hospitals are essential to our society, and their needs are public needs, as much to be met out of public generosity as out of taxes and rates.

The present situation of the voluntary hospitals of the metropolis is a terribly anxious one. Their financial position is serious, but not desperate. The war has crippled them as it has crippled many of those who used to help them freely, but they can point to their record in the war with pride and claim from all classes a double measure of support in difficulties greater than those which they have faced before. Hospital Sunday brings an opportunity to all. It is primarily the day on which those give who attend religious worship where collections are made, but it is not necessary to hold back from contributing because the collecting box is not rattled in the streets. Only let those who have the Metropolitan Hospital Sunday Fund brought to their notice in church or chapel not forget to press its claims on those who are absent; and let those who before initiate an annual custom .. donation. Ten years ago we

upon a collection of £100,000 as a record on which the public could be congratulated. If double that amount were to be recorded for 1920 it would still be inadequate when the change of conditions is considered. It is not the "usual amount" that all are urged to give. Let them double or treble it. And above all let no one hang back because of recent melancholy cries that the voluntary system is doomed. It has received, as a matter of fact, a new lease of life by being found to be a necessary part, even a nucleus, of the immense developments that are projected.

The Diagnosis, Prognosis, and Treatment of Nephritis.

It has been somewhat of a reproach to medicine that until recently the investigation of surgical diseases of the kidneys has been more scientific, more efficient, and more practical than that of the strictly medical diseases of these organs, with the result that surgical diagnosis and treatment have been more satisfactory and more successful. This has been largely due to the fact that tests for renal efficiency have been developed by surgical urologists for the express purpose of differentiating bilateral from unilateral disease, and for determining the affected side in the latter case and the efficiency of the remaining kidney. On the medical side much attention has been paid to the quantity and composition of the urine and the presence of albumin and casts, but it is only recently that the question of renal efficiency has been investigated in these cases. Much useful work has now been done on these lines which has not yet reached the text-books, and being still only to be found in monographs and papers in various medical journals, it remains outside the ordinary routine of medical procedure. We publish in this week's issue of THE LANCET an interesting and important paper by Dr. H. MACLEAN and Dr. A. E. RUSSELL, which we commend to the notice of our readers, since it not only gives a review of some reliable methods for investigation of the various aspects of the renal functions, but also contains practical and explicit details of their application and use. Incidentally it affords most valuable data in regard to diagnosis, prognosis, and treatment, which should be of the greatest help to the practitioner.

At the outset Dr. MACLEAN and Dr. RUSSELL point out that the specific functions of the kidneys known to physiology comprise three different processes—the elimination of the waste nitrogenous products of metabolism, the removal of acid products, and the maintenance of the necessary concentration of salts in the fluids and tissues of the body. It is a point of great interest to note that these functions are variously involved in the different forms of nephritis. In severe cases of chronic interstitial nephritis there is a definite retention of nitrogenous waste products in the blood, with a diminution of the acid-excreting function. On the other hand, in parenchymatous nephritis there is no evidence of any retention of nitrogenous bodies in the blood or of any failure in acid elimination, but there is usually inability to excrete the normal amount of salt. The bearing of these observations upon the clinical and chemical phenomena of the two varieties of nephritis is developed clearly by the authors. The retention of urea and other nitrogenous

products in the blood due to defective elimination in cases of chronic interstitial nephritis can easily be demonstrated, and the urea in the blood estimated. The absence of any defect in the function of the kidney dealing with salt explains the practical absence of oedema in this form of nephritis. In parenchymatous nephritis, on the other hand, the chief difficulty appears to be in the excretion of the necessary amount of salt, and as an inevitable result there is a retention of water leading to oedema, which, together with albuminuria, is the characteristic feature of this form of the disease. In the investigation of cases Dr. MACLEAN and Dr. RUSSELL recommend the use of salicyl-sulphonic acid as the best and simplest test for protein in the urine. They give directions for the examination of casts, but point out that the variations they show are not necessarily of much value in assessing the degree of renal inefficiency. For this purpose they bring forward three tests—the estimation of urea in the blood, to which reference has already been made; the new "urea concentration test" of MACLEAN and DE WESSELOW; and the estimation of the diastatic activity of urine, often referred to as the urinary diastase test. The second of these is strongly recommended by the writers of the paper on account of its simplicity and reliability, and since it has been used in nearly 3000 cases their opinion must necessarily be of great weight. The test involves no more complicated procedure than the administration of 15 g. of urea dissolved in about 100 c.cm. of flavoured water, and the estimation of the urea in samples of urine passed one hour, two hours, and occasionally three hours afterwards. Obviously it does not demand either much time or a difficult technique, and it can easily be made a routine procedure in the investigation of cases of renal disease where necessary. The diastase test also involves no very difficult procedure, but to be accurate requires a sample of the 24 hours' urine. Dr. MACLEAN and Dr. RUSSELL find a combination of the three tests very useful. We are glad to notice that they insist on the necessity of due correlation of the data so obtained with the results of a thorough clinical examination.

As affording some definite measure of renal efficiency, and indicating which of the kidney functions are involved, these tests afford valuable aid in prognosis and in treatment; it is not too much to hope that when the methods have been more widely applied and more fully developed some progress will be made towards a scientific classification of cases of nephritis, for those at present current are partly clinical, partly pathological, and all admittedly unsatisfactory. Dr. MACLEAN and Dr. RUSSELL give the normal figures obtained with the three tests they recommend, and indicate the departures therefrom which are to be regarded as of grave significance. They state that only one-fourth to one-sixth of the total kidney substance is really necessary to carry out the body needs, and, further, that it is only when the kidney efficiency is reduced to one-fourth or less of its original value that there is any tendency for urea to be retained in excess in the blood. In the light of their researches they have also examined the recent suggestion of ERSTEIN to give a liberal protein diet to cases of parenchymatous nephritis with marked dropsy. They have found that the disappearance of the dropsy which frequently occurs after this diet is always associated with an

increase in the blood urea. They therefore suggest that the increased excretion of urine is due to the diuretic action of this urea, and in support of this they find that large doses of urea given to such patients also lead to a disappearance of the dropsy. They are of opinion that the new forms of treatment may enable such patients to survive the dangerous dropsical stage of parenchymatous nephritis and pass into the less distressing chronic interstitial stage. Here they allow that limitation of protein intake may be beneficial, but they strongly deprecate the very low diet to which these patients are often condemned. The paper as a whole teems with practical suggestions and will be of great service to the practitioner who wishes to diagnose and treat his cases of renal disease on sound and scientific lines. It marks a notable advance in our knowledge of certain difficult and distressing diseases.

The Research Defence Society.

THE annual general meeting of the Research Defence Society will be held next Wednesday at 11, Chandos-street, the house of the Medical Society of London, when the chair will be taken by Lord LAMINGTON, the President. Lord KNUTSFORD, the Chairman of Committee, will submit the annual report. That report will show great activity on the part of the Society, and the Chairman, with characteristic humour, suggests that any fall away in the amount of work done before the war may be attributed partly at least to "the prevalent indifference towards our opponents." With regard to that we wish to lay stress upon a point, taken up also by Lord KNUTSFORD, that the Research Defence Society has to reckon with a wider sort of attack from those hostile to research than marked the earlier campaigns. Resistance to experimentation on animals no longer marks the scope of their blindness alike to facts and to the calls of real humanity. The protective treatments, founded on and emerging from such experimentation, are all in the near future likely to be impeded in their beneficial influence by the opponents of the applications of physiology to therapeutics. The admirable address by Sir WALTER FLETCHER on the work of the Research Defence Society, which we noticed in these columns a fortnight ago, shows well that the Society has before it a great task to educate the ignorant, appease the fanatic, and convince the reasonable man. Sir DAVID FERRIER is the honorary treasurer of the Research Defence Society; Mr. STEPHEN PAGET is the honorary secretary, assisted by Captain W. E. ELLIOT, a medical Member of Parliament; and all communications should be addressed to 11, Chandos-street, Cavendish-square, London, W.1. Money is needed.

UNIVERSITY OF LONDON.—The Senate has resolved to institute a diploma in psychological medicine which shall be open to all registered medical practitioners. The standard in psychological medicine required for the purpose of the proposed diploma will be approximately that required by the University of Cambridge for its diploma in psychological medicine.

GIFT TO BELFAST HOSPITAL.—Mr. George L. Moore, of Forest Hill, formerly in practice as a solicitor at Belfast, has intimated his intention of making a gift of £20,000 to the Royal Victoria Hospital, Belfast, in grants of not less than £1000 every year. A scheme is being formulated for the establishment of a ward to be called the "Moore Ward."

Innotations.

"Ne quid nimis."

A MEMORIAL TO VICTOR HORSLEY.

A MOVEMENT has recently been initiated by friends and former colleagues of the late Sir Victor Horsley towards some form of permanent recognition of his services to medical science, and a preliminary letter appealing for subscriptions to this end has appeared in the daily press. The endowment of a Victor Horsley lectureship has been suggested as a suitable memorial, and the Senate of the University of London as its most appropriate trustees; the exact form of its scope and constitution will be decided by a committee of which the officers are Sir Charles Ballance, chairman, Sir Arbuthnot Lane and Dr. E. J. Domville, joint honorary secretaries, and Sir Frederick Mott and Dr. H. H. Tooth, joint treasurers. The present idea is the foundation of an annual lecture, the subject of which should not be confined to medicine, while it may be delivered by any prominent man in any field of progress. Sir Victor Horsley's death from heat-stroke in Mesopotamia is so recent, and his personality was so forcible, that it would be superfluous to recapitulate in any detail the long list of his activities or to recall the brilliance of his career. It will be remembered that the connexion between myxedema and athyroidism—long a commonplace of the text-book—was first established by Horsley by means of experimental work on monkeys at the Brown Institute. Here he also carried out extensive researches on rabbits. As professor of pathology at University College he developed his bent for experimental research in physiology; and when, as surgeon to the National Hospital for Diseases of the Nervous System, he met again his old friend Charles Beever (who, as house physician, had taught him the rudiments of medicine) together they mapped out the motor area of the orang. Their work, published in the Proceedings of the Royal Society, 1886-7-8, in delimiting the cortical motor areas was for many years the standard reference on the subject. In the surgery of the brain and spinal cord Horsley soon became undisputed leader, and, to quote only one of his specialties, his method of performing the Hartley-Krause operation for extirpation of the Gasserian ganglion brought him much fame. One of his latest discoveries was the recognition of loculated spinal meningeal cysts as a cause of paraplegia; and their operative treatment.

Horsley was a born fighter. And his love of the struggle did not always help his cause. He was a most successful champion of freedom for the physiologist in the cause of research, but the enthusiasm which led him ever to consider his own side right was not in other directions so successful. Therefore wide recognition of his splendid ideals is called for now that he is gone. In his later years he turned to medical politics, being elected as a Direct Representative to the General Medical Council in 1897, and remaining a member till 1907. He did admirable work, but his contentiousness sometimes impeded business. He also took a prominent share in inspiring the policy of the British Medical Association, as represented by the present Articles. His aspirations towards Parliament never materialised, though he held strong political views; but it is difficult to imagine his ever serving under a party-chief. He was a man of extreme and tireless energy, at play as well as at work; at his own shooting parties he would walk all his guests off their feet. But more than all sport in any field, he loved his work in the laboratory. Though somewhat critical of the efforts of his colleagues, his generosity to his juniors was amazing; he would spend an incredible amount of time and money in helping a younger man in experimental work, and in encouraging his investigations. His own surgical technique was superb. The son of a Royal Academician, he was no mean draughtsman, and was unusual in being almost ambidextrous with pencil, pen, or scalpel. His optimistic manner inspired the

greatest possible confidence in his patients. The man was like a diamond of many brilliant facets—small wonder that those with whom he came into conflict, and feared those with whom he came into conflict. No other medical man of his time was associated with such diverse movements down so many streams of public life. None of the crafts piloted by him ran the slower for his intervention; in fact, he rejoiced through the them near the rapids, and it necessary in obtaining rapid. There should be no difficulty in obtaining the requisite support to any testimonial to his memory. Among those anxious to be represented will be his scientific colleagues, the Fellows of the Royal Society and of the Royal College of Surgeons of England; his personal friends, and even his personal enemies, who for the most part recognised his sincerity; those women who remember his help in the struggle for political and educational franchise and their younger sisters, more especially those whose admission as medical students to University College Hospital, he did not live to see; and, lastly, members of University College Medical School, from his colleagues to his dressers, who will be proud to perpetuate the memory of a worker who brought so much fame to their school, and who would have rejoiced so heartily in its present magnificent opportunities for development.

APPARENT PULSUS PARADOXUS.

IN pulsus paradoxus the normal increased rapidity of the pulse during deep inspiration is replaced by slowing; the cardiac contractions are correspondingly slowed. In the *Boston Medical and Surgical Journal* of May 20th Dr. Paul D. White has reported an interesting case in which the pace-maker of the heart and the auricles acted normally during inspiration—that is, responded by increased rate—but heart-block was also produced, which led to slowing of the ventricles and therefore of the pulse, simulating pulsus paradoxus. The patient, a soldier, aged 23 years, was admitted to a base hospital on Nov. 10th, 1918, with influenza. There was a history of severe double pneumonia at the age of 5 years, since which time his pulse had always been slow. He said that the fact that his pulse got slower on excitement or exertion had been noted for years. He had suffered from typhoid fever five years ago. Examination showed that he was convalescing from influenza. Polygrams were taken as follows:—

	Auricular rate.	Ventricular rate.
Quiet in bed	43	43
Quiet in bed later	40	40
During deep inspiration	70	35
Deep expiration	41	41
Immediately after moderate exertion	72	36

The tracings showed that on deep inspiration there were two auricular contractions to one ventricular—a heart-block. Evidently the auriculo-ventricular valve was damaged, probably by the disease in childhood, and when the auricular rate rose above a certain level failed to transmit every other impulse. The pace-maker of the heart responded normally to exertion and inspiration by increased rate, but as this was halved in the ventricles their rate actually fell, simulating pulsus paradoxus. During the slow rate of the heart auriculo-ventricular conduction was normal. The slow rate of the pace-maker under ordinary circumstances is noteworthy. Was this due to the disease of childhood affecting the auricle, or did the impaired conductivity of the auriculo-ventricular bundle in some way affect the pace-maker, causing it to settle down to a rate which the bundle was capable of conducting? Volhard has described a similar paradoxical response to change of position. While lying flat the patient had a pulse of 44 and a block; sitting up he had a pulse of 42 with a 2:1 block; the auricular rate being 84; on standing the pulse dropped to 22 and became irregular, due to varying degrees of block from 2:1 to 5:1. Atropin slightly increased the dissociation by increasing the auricular rate, with which the ventricles could not keep

pace. Lutembacher has reported a case of "orthostatic bradycardia due to intermittence of conduction of the bundle of His." With an auricular rate of 60 there was no block; at 70 to 80 a 2:1 block; and with higher auricular rates 3:1 and 4:1 blocks.

THE GIFT FROM THE ROCKEFELLER FOUNDATION TO UNIVERSITY COLLEGE HOSPITAL AND MEDICAL SCHOOL.

THE simple facts of the benefaction to University College Hospital and School have been obscured by so much appreciative comment that we propose to set them out baldly. The figures are in themselves sufficiently impressive. The total sum offered is just under £1,205,000—£835,000 to the University College Hospital and Medical School and £369,800 to the University of London on behalf of University College. Of the former sum £400,000 is to be allocated to the building and equipment of a nurses' home, residents' quarters, obstetrical and bio-chemical departments, and the reconstruction of certain existing buildings. The income from the remaining £435,000 will be devoted to the medical, surgical, and obstetric units, to salaries in the departments of bio-chemistry and pathology, and towards the maintenance of beds in the reconstructed hospital wing. The gift to University College is to be applied to the erection of an anatomical institute and to its maintenance. It is estimated that the increased cost entailed on the hospital and medical school, the provision of which is understood to be an implied condition of the benefaction, will amount to, roughly, £20,000 a year. These are the bare facts. The scale of the benefaction is unique in this country, and our appreciation of the honour to one of the most progressive of the London medical schools is not the less because we reserve a detailed discussion until we have been able to study the terms more closely. Such generosity from another country in the cause of scientific research is somewhat humiliating; it is a measure of the neglect of medical education in the past that the benefaction has evoked such widespread notice. King Edward's Hospital Fund has administered larger sums for charitable purposes without so greatly surprising the people. Had the present gift been distributed over all the medical schools in London it would have been less impressive, and certainly less stimulating; but the been offered exclusively for purposes of research or of teaching it would have been less interesting. But the gift is to be regarded primarily as a tribute to the recent attempt at combining research with training. The clinical unit system, initiated by the Board of Education and carried out at University College Hospital in response to official suggestion, was the innovation which first attracted the notice of the two representatives of the Rockefeller Foundation, and it is to its adoption by University College Hospital that the gift is mainly due.

THE MANIFOLD USES OF RUBBER.

THERE is evidently plenty of rubber available now, judging from the offer of substantial money prizes by the Rubber Growers Association as an award for suggestions as to extending the present uses or for encouraging new uses of this singularly resilient material. Incidentally, this should be good news for scientific research, as rubber is, of course, a great adjunct in the laboratories, while also in is an indispensable servant in medicine and in surgery. The offer, however, probably refers to wider uses, for the relative value of suggestions which are deemed practical will, we understand, depend upon the quantity of raw rubber the adoption of these suggestions would absorb, and special considerations, it is announced, will be given to practical suggestions likely to utilise rubber in large quantities. (The italics are not ours, but appear in the conditions laid down by the Association.) Our interest, however, lies in the fact that the offer, generally speaking, should mean that rubber is going to be readily obtainable and at a relatively moderate cost, and an ample supply of the

material will obviously be a gain to medical science in general. It will be remembered that at one time during the war good rubber was practically unobtainable. There is one thing in regard to rubber, which we hope our rubber producers will give their attention to, and that is its inclination with age to lose its flexible qualities. An old rubber tube, if it has not been constantly used, will frequently be found brittle and full of cracks, and therefore useless for its special purpose. If its flexibility and resiliency could be made permanent the material would be of much greater value. That consideration apart, something is almost bound to come out of this interesting offer, considering the infinity of the applications of rubber, particularly if it should prove that the world's production is such as to make it a cheaper commodity. The assumption arises out of this appeal to the brains of the public to find a bigger outlet for its uses. Improvements in the vulcanising of rubber are announced this week, for which the claim is made that by simplifying the process ways are opened up for new and extensive applications of the material.

A CASE OF LUPUS IN AN ARMY PENSIONER.

A FEW days ago the Minister of Pensions was asked in the House of Commons why treatment had been refused to a private of the Scots Fusiliers suffering from lupus. The recruit had joined voluntarily in 1915 and then was in perfect health, and was passed fit for general service by three separate medical boards. Owing to undue exposure he was sent into hospital with "acute myalgia," and while there lupus developed at the back of one ear. In 1916 he was discharged as totally unfit for service. He was treated at Manchester for lupus, when the treatment was approved and authorised by the Ministry of Pensions. Treatment was continued until last September, when the patient was informed that the Ministry of Pensions did not accept responsibility for lupus and that the treatment was not authorised. Inquiries are being made into the case. If we accept the facts as stated, then it appears clear that the lupus appeared while the patient was in the army, for we may take it that he had no sign of this disease when he was first examined. We are told that he suffered much exposure, and it can hardly be doubted that his service was directly responsible for the appearance of the disease. It is well recognised that the reason that lupus appears very commonly on the nose, cheeks, and ears is due to the fact that these parts are subjected to great variations of temperature from their exposed position and slight blood-supply, and therefore the exposure to which this patient was subjected should be held responsible for the disease. Investigation may show that the facts are not as they were stated, but if the Member who asked the question was correctly informed, we think that the Ministry of Pensions will be acting without the sanction of medical knowledge in disclaiming responsibility.

CONGENITAL STENOSIS OF BOTH URETERAL ORIFICES.

Dr. Isabel M. Wason, writing from the Brady Laboratory of Pathology and Bacteriology of the Yale University School of Medicine, reports the following unusual case. A poorly nourished male infant, aged 7 months, was admitted to hospital for diarrhoea. Physical examination was negative. Death took place 14 days after admission. The autopsy showed double hydronephrosis with dilated tortuous ureters, which ended in cystic dilatations in the small vesical cavity. The ureteral orifices were not visible to the naked eye, but in serial sections they were found to be stenotic and to measure $\frac{1}{8}$ to $\frac{1}{4}$ mm. in diameter. There was also a valve in the prostatic urethra extending from the lower end of the verumontanum to the right urethral wall. In her commentary on the case Dr. Wason states that the presence of a valve formation in the lower prostatic urethra is probably the commonest cause of double hydronephrosis in children. Such an

obstruction is usually bilateral, and the urine can only pass through a narrow slit. This gives rise to dilatation of the urethra above this point, dilatation and hypertrophy of the bladder, dilatation of both ureters, and double hydronephrosis. In the present case, however, the valve was found on one side only and did not cause sufficient obstruction to the passage of urine to produce dilatation of the upper prostatic urethra and of the bladder. The dilatation of the ureters and renal pelvises was, therefore, not due to the prostatic valve, but to the stenosis of the ureteral orifices, which was possibly caused by a partial overgrowth of epithelium and muscle in embryonic life. Congenital stenosis with cystic dilatation of the vesical end of one ureter is unusual, but to find the condition present to the same extent in both ureters, as was exemplified in Dr. Wason's case, is extremely rare.

THE POSITION OF VETERINARY SCIENCE.

THE Veterinary Surgeons Act (1891) Amendment Bill was read a third time on June 11th, and it seems quite probable that the Bill will pass into law. For some time now there has been a lack of funds available for the Royal College of Veterinary Surgeons to enable it to carry out its statutory duties and to improve veterinary education. The chief object of the Bill is to remedy this situation, and to this end it provides for the compulsory annual payment of 1 guinea by all members of the College who are in active practice in the United Kingdom. The Bill also gives status to the practitioners who were registered under the Act of 1891, and makes them amenable to the discipline of the profession, while it also provides that companies shall not infringe the Act of 1891. Much controversy has arisen about the status of veterinary science in this country, and many educationalists think that great benefit would accrue to the scientific status of the profession through a provision at all universities for the granting of veterinary degrees. But the practical value of a university degree would depend on the facilities existing in a university for the imparting of veterinary instruction. It would only be by a slow and gradual process that these facilities could be obtained, and then if there was not sufficient demand for university veterinary degrees the innovation would be a barren one. The profession only numbers about 3000 all told. It is only a small one, and the prizes scorable in it are not likely to cause a great rush of intellectuals to seek entry into its ranks. At the present time two universities grant three veterinary degrees. The Liverpool University grants the degrees of D.V.H. (Diploma in Veterinary Hygiene) and D.V.Sc. (Doctor in Veterinary Science), and the Victoria University, Manchester, grants the D.V.S.M. (Diploma in Veterinary State Medicine), whilst the University of London grants facilities for the taking of the B.Sc. degree concurrently with the M.R.C.V.S. diploma. The real advancement of veterinary science can only follow an educational campaign in the whole realm of animal breeding and rearing. The difficulty is to get the zeal for the benefits of science into the hearts of the workers among animals. Appalling ignorance abounds and sheer laziness increases every day. In quite recent times we have heard of such medieval enormities being committed as these:—human feces put on to a festering sore to enable it to heal, a red herring tied to a cow's tail with the object of making it rise, and a sliced raw onion put into a mare's vagina to cure colic. The simple lessons of hygiene in many cases are not known, and even where known in perhaps over 60 per cent. of cases they are not practised. To procure any real advance in veterinary science disease-prevention work by veterinarians needs preceding by a decade or two of disease-prevention instruction and work by stock attendants, stock owners, farmers, dairymen, and agricultural and town landlords. The whole question is one of education, finance, and zeal for hygiene. How long will it take to bring these things up to a really effective pitch? At present the good food that veterinary science provides is not half assimilated by those for whom it is intended, and any culinary refinements will be thrown away or wasted.

BRITISH MEDICAL ASSOCIATION: PROGRAMME OF ANNUAL MEETING.

The eighty-eighth annual meeting of the Association will be held at Cambridge, under the Presidency of Sir T. Clifford Allbutt, Regius Professor of Physic in the University, who will deliver his address on Tuesday, June 29th, preceding the sectional proceedings.

The Representative Meeting will begin in the Examination Halls on Friday, June 25th, at 10 A.M., and the statutory annual general meeting will be held at the Examination Halls on Tuesday, June 29th, at 2 P.M.

The annual dinner will be held in the Hall of St. John's College at 8 P.M., on Thursday, July 1st. The popular lecture will be given by Dr. G. S. Graham-Smith, F.R.S., on "Flies," at 4.30 P.M. on Friday, July 2nd.

DEMONSTRATIONS.

Laboratory and clinical demonstrations will be given on three consecutive days from 2.30 to 4.30 P.M., commencing on Wednesday, June 30th. The directors of demonstrations are:—

Medicine: Dr. Aldren Wright.
Surgery: Mr. Arthur Cooke.
Physiology: Professor J. N. Langley, F.R.S.
Pharmacology: Professor W. E. Dixon, F.R.S.
Neurology: Dr. E. D. Adrian.
Pathology: Professor Sir G. Sims Woodhead.

THE SECTIONS.

The scientific business of the meeting will be conducted in 12 sections, which will meet on the days indicated from 10 A.M. to 1 P.M., the demonstrations following in the afternoons.

Medicine.

President: Sir Humphry D. Rolleston, K.C.B., M.D., F.R.C.P.
Honorary Secretaries: A. J. Jex-Blake, M.D., F.R.C.P. (13, Ennismore-gardens, London, S.W. 7); W. E. Hume, M.D., F.R.C.P. (4, Ellison place, Newcastle-on-Tyne); E. Lloyd Jones, M.D. (69, Trumpington-street, Cambridge); J. Aldren Wright, M.D., M.R.C.P. (Director of Demonstrations, 2, Corpus-buildings, Cambridge).

June 30th (Morning Session).—Discussion on the Diagnosis of Nervous Disorders of the Stomach and Intestines. To be opened by Dr. A. T. Hurst.

In the afternoon Mr. J. Bancroft will demonstrate Methods of Analysing the Gases of the Blood and Alveolar Air.

July 1st (Morning Session).—Discussion on the Present Position of Vitamines in Clinical Medicine. To be opened by Professor F. Gowland Hopkins.

July 2nd (Morning Session).—Discussion on the Clinical Significance and Course of Subacute Bacterial Endocarditis. To be opened by Sir Thomas Horler.

An exhibition of specimens illustrating the subject of this discussion will be held in the Pathological Museum.

Surgery.

President: Sir George H. Makins, G.C.M.G., C.B., F.R.C.S.
Honorary Secretaries: W. H. Bowen, M.S., F.R.C.S. (21, Lensfield-road, Cambridge); Arthur Cooke, F.R.C.S., Grove Lodge, Cambridge (Demonstration Secretary); G. E. Gaskell, C.M.G., D.S.O., F.R.C.S. (11, Deodarville place, London, W. 1); Gordon Taylor, O.B.E., M.S., F.R.C.S. (45, Marlborough-street, London, W. 1).

June 25th (4 A.M.).—Discussion: Surgical Treatment of Gastric Ulcer. To be opened by Sir Berkeley G. A. Moynihan and Dr. Charles H. Mayo.

July 1st (4 A.M.).—Discussion: Surgical Treatment of Cancer of Rectum. To be opened by Mr. W. Ernest Miles and Mr. Grey.

Demonstration in the afternoon by Colonel R. H. Elliot on the treatment of the following cases:—

July 2nd (10 A.M.).—Discussion: End-Results of Injuries to the Peripheral Nerves treated by Operation. To be opened by Sir William Thompson and Mr. Percy Sargent.

Demonstrations will be given in the afternoons by Major Maurice Sargent on the Treatment of Fractures; by Mr. H. D. Gillies and Mr. Richard Cole on Plastic Surgery of the Face; by Mr. Herbert Trevelyan on the Surgery of the Lower Air Passages and Gullet; and by Mr. Arthur Cooke on the Technique of Blood Transfusion.

Neurology and Psychiatry.

President: Henry Head, M.D., F.R.S.
Honorary Secretaries: E. D. Adrian, M.D., M.R.C.P. (Trinity College, Cambridge); E. Fothergill Hurrard, M.D., F.R.C.P. (44, Welbeck-street, London, W. 1); George Biddell, M.D., M.R.C.P. (12, Abchurch-lane, London, E.C. 4).

June 30th (Morning Session).—Discussion on the Early Signs of Nervous Disease and their Interpretation. To be opened by Henry Head, M.D., F.R.S.

July 1st (Morning Session).—Discussion on Dementia Praecox and its Relation to other Conditions. To be opened by Bernard Hart, M.D.

July 2nd (Morning Session).—Discussion on Psychotherapy. To be opened by T. A. H. M.D.

Demonstrations will be given in the afternoon by the following:—

Anne-street, London, W. 1; Helen Ingleby, M.D., M.R.C.P. (44, Welbeck-street, London, W. 1).

June 30th.—Atrophy of the Liver. To be opened by Professor Stuart McDonald, M.D., F.R.C.P.

July 1st.—The Present Position of Cancer Research. To be opened by J. A. Murray, M.D.

July 2nd.—The Bacteriology of Cerebro-spinal Meningitis. To be opened by J. A. Arkwright, M.D., F.R.C.P. (A collection of specimens to illustrate the subject under discussion will be available.)

The afternoons will be devoted to meetings of the Pathological Society of Great Britain and Ireland.

Physiology and Pharmacology.

President: Professor F. Gowland Hopkins, M.B., F.R.S.
Honorary Secretaries: D. V. Cow, M.D. (The Bridge House, Great Shelford, Cambridge); Edward Mellanby, M.D. (32, Addison Mansions, Kensington, London, W. 14).

June 30th.—Discussion on Acidosis in Disease. To be opened by Professor F. Gowland Hopkins.

July 1st.—Discussion on the Physiology and Treatment of Denervated Muscle. To be opened by Professor J. N. Langley, F.R.S.

July 2nd.—Discussion on Quinine and its Derivatives. To be opened by Professor W. E. Dixon, F.R.S.

Naval and Military.

President: Colonel Joseph Griffiths, C.M.G., M.D., F.R.C.S.
Honorary Secretaries: Major A. S. Macgregor, O.B.E., M.D., R.A.M.C. (T) (Sanitary Chambers, Glasgow); Major H. B. Roderick, O.B.E., M.Ch., M.D., R.A.M.C. (T) (17, Trumpington-street, Cambridge); Lieutenant-Colonel F. E. Apthorpe Webb, O.B.E. (Grafton House, Maid's Causeway, Cambridge).

June 30th (10 A.M.).—Discussion on the Army Medical Service and its Relation to the Education and Training of Newly Qualified Medical Men, to be opened by the President. 2.30 P.M.—The Naval, Military, and Air Force Medical Services will exhibit the new inventions and equipments that arose during the Great War. Each department will be fully represented, and each will be in charge of an officer who will be prepared to demonstrate and explain the exhibits.

Obstetrics and Gynaecology.

President: Herbert Williamson, M.B., F.R.C.P.
Honorary Secretaries: Malcolm Donaldson, M.B., F.R.C.S. (145, Harley-street, London, W. 1); W. R. Grove, M.D. (St. Ives, Hunts).

June 30th.—Discussion on Puerperal Sepsis. (1) Mr. Victor Bonney (London): Introductory Paper. (2) Mr. H. Beckwith Whitehouse (Birmingham): Surgical Treatment of Uterus in Puerperal Sepsis. (3) Dr. A. E. Gow (London): Intravenous Protein Therapy in Treatment of Puerperal Septicemia. (4) Dr. Leith Murray (Liverpool): Use of Serums and Vaccines in the Treatment of Puerperal Sepsis.

July 1st.—At 10 A.M. there will be a joint session with the Section of Electro-therapeutics to discuss the Treatment of Fibroids by X Rays. Opened by Dr. R. Knox.

Dr. R. Mackenzie Wallace will give a demonstration of the Diastase Reaction on Wednesday, followed by a demonstration from Mr. M. S. Mayou on Ophthalmia Neonatorum.

Tropical Medicine.

President: Professor G. H. F. Nuttall, M.D., F.R.S.
Honorary Secretaries: Charles Frederick Squire, M.D. (67, Bridge-street, Cambridge); J. Gordon Thomson, M.B. (24, Herve Hill, London, S.E. 24).

June 30th (Morning Session).—Papers: (1) Problem of Filariasis, by Drs. Stephens and Yorke. (2) Role of *F. bancrofti* in the Production of Lymphatic Obstruction and a Consideration of Elephantiasis from the Pathological Standpoint, by Dr. G. C. Low and Dr. P. H. Manson-Bahr. (3) Dietetic Deficiency and Endocrine Activity, with Special Reference to Deficiency Oedemas, by Lieutenant-Colonel Robert McCarrison, I.M.S.

In the afternoon there will be the following demonstrations: (1) Parasitic Worms, by Dr. R. T. Leiper. (2) Exhibition Collection of all known species of Tsetse Flies, with demonstration dealing with the Morphology and Bionomics, by Professor Newstead. (3) Demonstration of the use of the Mobile Laboratory for Malarial Inquiries in England, by Colonel S. P. James. (4) Paintings illustrating the Treatment of Leprosy, by Lieutenant-Colonel Sir Leonard Rogers.

Medical Education.

President: Sir George Newman, K.C.B., M.D., F.R.C.P.
Honorary Secretaries: S. R. Gloyne, M.D. ("Hatherley," Chalfont St. Giles, Bucks); Professor J. Kay Jamieson, M.B. (Dean of Faculty of Medicine, Leeds).

July 1st (10 A.M. to 1 P.M.).—Address by the President. Discussion: Preliminary Scientific Education in the Medical Curriculum. Openers: Professor S. J. Hickson (Biology); Professor Arthur Keith (Anatomy); Professor Sir Ernest Rutherford (Physics); Professor J. Lorrain Smith (Pathology); Professor A. Smithells (Chemistry).

Veneral Diseases.

President: E. B. Turner, F.R.C.S.
Honorary Secretaries: W. H. Harvey, M.D. (The Dene, Great Shelford, Cambridge); Otto May, M.D. (19, Well Walk, Hampstead, London, N.W. 3).

July 1st (10 A.M.).—Discussion on Venereal Diseases in Women and Children: (1) Dr. Morna Rawlins: Treatment of Venereal Disease in Women. (2) Dr. Leonard Findlay: Venereal Diseases in Children.

In the afternoon there will be a clinical demonstration at the Venereal Diseases Clinic, Addenbrooke's Hospital, and a laboratory demonstration in the Medical Schools under the direction of Mr. J. E. Barnard.

The following Sections meet on Friday only:—

Electro-therapeutics.

President: Alfred Ernest Barclay, M.D.
Honorary Secretaries: E. J. Chamberbatch, M.B., M.R.C.P. (12, Upper Wimpole-street, W. 1); F. Shillington Seales, M.D. ("R-leisure," Adams-road, Cambridge).

July 2nd.—Presidential address by Dr. A. E. Barclay; Place of the Radiologist in Medicine. Discussion on the Diagnosis and Treatment of Paralysis caused by Nerve Injury, to be opened by Mr. H. S. Souttar. Joint Discussion with Section of Obstetrics and Gynaecology on Treatment of Uterine Fibroids (see above).

Medical Society.

President: G. E. Haslip, M.D.

Honorary Secretaries: S. Morton Mackenzie, M.B. 19, Rose-hill, Dorking; C. M. Stevenson, M.D. 93, Chesterton-road, Cambridge. July 2nd (10 A.M.).—Sir George Newman will open a discussion on the Future of Medical Practice, dealing with the subject from the point of view of the State. The discussion will be continued by Sir Wilmot Herringham from the standpoint of the Consultant; Dr. Alfred Linnell from that of the General Practitioner; Professor F. Gowland Hopkins from that of Medical Research; and Mr. E. W. Morris, C.B.E., house governor London Hospital, from that of the Hospitals.

Pathological Museum.

Committee: Sir German Smith Woodhead, K.B.E. (chairman), Dr. L. Cobbett, Dr. G. S. Graham-Smith, Dr. W. H. Harvey, Mr. T. S. P. Strangeways, and Dr. H. B. Roderick, M.Ch. (honorary secretary).

The Pathological Museum arranged in connexion with the meeting will occupy a central position in two temporary buildings in the first court of the Medical Schools. It is proposed to arrange the material under the following heads: (1) Exhibits bearing on discussions and papers in the various Sections. (2) Specimens and illustrations relating to any recent research work. (3) Individual specimens of special interest or a series illustrating some special subject. (4) Instruments or appliances relating to clinical diagnosis and pathological investigation. There will also be a series of exhibits illustrative of war specimens, arthritis, cerebro-spinal meningitis, and parasitology. So far as practicable each section will be under the charge of a demonstrator, but exhibitors will have an opportunity of demonstrating their own specimens.

Communications regarding material for exhibition should be addressed to Dr. H. B. Roderick, at the Surgical Department, Medical School, Cambridge.

The honorary local secretaries of the meeting are J. F. Gaskell, M.D., F.R.C.P., The Uplands, Great Shelford, near Cambridge, and G. S. Haynes, M.D., 58, Lensfield-road, Cambridge. Communications should be addressed to them at the Medical Schools, Cambridge.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

The Increase in the Medical Profession.

At the final examination for medical degrees in the Sydney University 49 candidates were successful, while 69 failed. In the University of Melbourne 42 succeeded and 24 were rejected. This represents, with passes in Adelaide, an addition to the ranks of the profession of upwards of 100 practitioners. As the population of Australia is little more than stationary beyond a natural increase, it is evident that the supply of medical practitioners is growing out of proportion to any prospects of practice, although at present there are no signs of overcrowding. It is, however, significant that in Melbourne two bodies have been formed, the one exclusively surgical and the other medical, whose object, amongst other things, is to conserve the status of the true consultant against the inroads of general practitioners who devote their spare time to special practice. At least it would be well for British graduates to have some definite prospect before looking to Australia as a possible field of work.

The Health of Miners: Tuberculosis and Hookworm.

The Federal and State Governments have jointly equipped an institute to inquire into tubercle among the mining population of Bendigo. The objects are:—

1. To determine the actual number of persons suffering from tuberculosis in Bendigo and district.

2. To ascertain the epidemiological factors involved in connexion with the existing infections. These factors would include an investigation into the evidence of infection of persons who have been in contact with infected persons, the relation of the spread of the disease to unsanitary conditions, the relations of the disease to mining, &c.

3. To determine the relative importance of bovine and of human infection in the distribution of the disease in Bendigo.

Dr. D. G. Robertson has been placed in charge. A hookworm inquiry is being conducted at the same time.

At Broken Hill the Broken Hill Mine directorate has opened an investigation into the health of the miners and the conditions under which they work (when they do work, which they have not done for very many months). There is a staff of eight medical men, and over 1000 men have already been examined.

University of Sydney.

Professor J. T. Wilson, professor of anatomy, has been appointed Dean of the Medical School in the place of the late Sir T. Anderson Stuart. The future of the chair of physiology was discussed and referred to a sub-committee for consideration.

The Recent Appointments at the Melbourne Hospital.

The recent dissatisfaction with two appointments made to the staff of the Melbourne Hospital on the ground that sufficient attention was not given to the fact that other candidates were returned soldiers, has been allowed to drop after much heated talk and protest. The hospital committee has agreed to a resolution that in all future appointments special preference must be given to applicants with overseas service, but this does not create any new position, and was adopted chiefly to save the faces of those who ought to have known that the most careful consideration had been given to this very point by the advisory committee, but still clamoured for the appointments to be reviewed. The appointments made were not disturbed.

Dr. T. P. Dunhill, C.M.G., who is leaving for London by the *Orvieto* on May 5th, was entertained at dinner by the Victorian Branch, B.M.A., and the Melbourne Medical Association. Readers of THE LANCET will remember the exhaustive study, illustrated by unusually good photographs, on the Surgery of Exophthalmic Goitre, by Dr. Dunhill, which appeared in these columns in December, 1917. Dr. Dunhill will take up his duties as assistant director of surgery at St. Bartholomew's Hospital immediately on arrival in London.

Dr. R. J. Bull, who has for many years been director of bacteriology in the Melbourne University, has been granted leave, and will visit Europe immediately in order to inform himself at first hand of bacteriological progress and teaching.

April 22nd.

URBAN VITAL STATISTICS.

(Week ended June 12th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 13.2, 12.8, and 11.6 in the three preceding weeks, further declined to 11.0 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 10.6, or 0.4 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 5.0 in Ealing, 5.2 in Tottenham and in Edmonton, and 6.0 in Wallasey, to 17.2 in Hastings, 17.4 in Blackburn, and 19.6 in Bootle. The principal epidemic diseases caused 226 deaths, which corresponded to an annual rate of 0.8 per 1000, and comprised 89 from measles, 70 from infantile diarrhoea, 48 from diphtheria, 46 from whooping-cough, 14 from scarlet fever, and 5 from enteric fever. Measles caused a death-rate of 2.2 in Leicester, 2.8 in Walsall, and 3.6 in Swansea. The deaths attributed to influenza, which had declined from 216 to 148 in the four preceding weeks, further fell to 86, and included 21 in Sheffield, 13 in London, and 6 in Carlisle. There were 1722 cases of diphtheria and 1642 of scarlet fever under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1747 and 1633 respectively at the end of the previous week; there were also 4 cases of small-pox belonging to East Ham, of which 3 were admitted during the week. The causes of 28 of the 3770 deaths in the 96 towns were uncertified, of which 8 were registered in Birmingham.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had declined from 18.4 to 13.6 in the five preceding weeks, further fell to 12.7 per 1000. The 291 deaths in Glasgow corresponded to an annual rate of 13.6 per 1000, and included 8 from measles, 7 each from small-pox and infantile diarrhoea, 3 from diphtheria, 2 each from scarlet fever and whooping-cough, and 1 from enteric fever. The 75 deaths in Edinburgh were equal to a rate of 11.5 per 1000, and included a fatal case each of whooping-cough and infantile diarrhoea.

Irish Towns.—The 129 deaths in Dublin corresponded to an annual rate of 16.2, or 2.5 per 1000 below that recorded in the previous week, and included 10 from whooping-cough, 5 from measles, 4 from infantile diarrhoea, and 1 each from enteric fever, scarlet fever, and diphtheria. The 103 deaths in Belfast were equal to a rate of 13.8 per 1000, and included 4 from whooping-cough and 1 each from scarlet fever and infantile diarrhoea.

VITAL STATISTICS OF LONDON DURING MAY, 1920.

In the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease, it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 6.3 per 1000 of the population, estimated at 4,352,300 persons; in the three preceding months the rates had been 7.7, 7.1, and 6.7 per 1000. Among the metropolitan boroughs the lowest rates from these diseases last month were recorded in Hammersmith, St. Marylebone, Hampstead, Stoke Newington, the City of London, and Woolwich; and the highest in Fulham, Shoreditch, Bethnal Green, Stepney, Poplar, and Lewisham. The case of small-pox notified during May belonged to Greenwich. The prevalence of scarlet fever was slightly less than in the preceding month; this disease was proportionally most prevalent in Fulham, Shoreditch, Bethnal Green, Stepney, Poplar, and Deptford. The Metropolitan Asylums Hospitals contained 1671 scarlet fever patients at the end of the month, against 2266, 1931, and 1795 at the end of the three preceding months; the weekly admissions averaged 223, against 279, 240, and 223 in the three preceding months. Diphtheria was somewhat less prevalent than in April; the greatest prevalence of this disease was recorded in Fulham, St. Pancras, Holborn, Bethnal Green, Poplar, Battersea, and Lewisham. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 2003, 1964, and 1937 at the end of the three preceding months, numbered 1783 at the end of May; the weekly admissions averaged 214, against 240, 260, and 221 in the three preceding months. The prevalence of enteric fever was somewhat greater than in the preceding month; of the 23 cases notified during the month, 4 belonged to Stepney, 4 to Battersea, 3 to the City of Westminster, 3 to Hackney, 2 to Fulham, 2 to Hampstead, and 2 to Wandsworth. There were 18 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 30, 33, and 29 at the end of the three preceding months; the weekly admissions averaged 3, against 6, 6, and 4 in the three preceding months. Erysipelas was proportionally most prevalent in the City of Westminster, St. Marylebone, Finsbury, Poplar, Southwark, Greenwich, and Lewisham. The 38 cases of pterial fever included 4 in Fulham, 4 in Islington, and 3 each in Chelsea, Hackney, Poplar, Lambeth, Battersea, and Wandsworth. The 12 cases of cerebro-spinal meningitis included 3 in Southwark and 3 in Battersea.

No case of poliomyelitis was notified during the month. The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended May 29th the deaths of 4145 London residents were registered, equal to an annual rate of 12.4 per 1000; in the three preceding months the rates had been 16.6, 17.6, and 15.4 per 1000. The death-rates ranged last month from 7.6 in Hampstead, 9.4 in Wandsworth, 10.7 in Camberwell, and 11.1 in Hackney, to 13.8 in Stoke Newington, 13.9 in Finsbury, 14.0 in Greenwich, 14.6 in Battersea, 14.8 in Bethnal Green, 14.8 in Stepney, and 23.5 in the City of London. The 4145 deaths from all causes included 350 which were referred to the principal infectious diseases; of these, 115 resulted from measles, 11 from scarlet fever, 67 from diphtheria, 85 from whooping-cough, 7 from enteric fever, and 65 from diarrhoea and enteritis under 2 years of age. No death from any of these diseases was recorded last month in Holborn or the City of London. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Chelsea, the City of Westminster, Hampstead, Stoke Newington, and Lewisham; and the highest in St. Pancras, Finsbury, Bethnal Green, Stepney, Bermondsey, and Battersea. The 115 deaths from measles were 52 below the average number in the corresponding period of the five preceding years; this disease was proportionally most prevalent in Paddington, Stepney, Southwark, Bermondsey, Battersea, and Camberwell. The 11 fatal cases of scarlet fever were equal to the average, and included 2 in Islington. The 67 deaths from diphtheria exceeded the average by 23; the greatest proportional mortality from this disease occurred in Hammersmith, Fulham, Hackney, Finsbury, Bethnal Green, and Bermondsey. The 85 fatal cases of whooping-cough were 19 fewer than the average; this disease was proportionally most fatal in St. Pancras, Hackney, Bethnal Green, Poplar, Bermondsey, and Battersea. Seven deaths from enteric fever were registered during the month, against an average of 6; of these deaths, 2 belonged to Hampstead. The 65 fatal cases of infantile diarrhoea were 13 in excess of the average; the greatest proportional mortality from this disease occurred in Kensington, Hammersmith, St. Marylebone, Finsbury, Shoreditch, Stepney, and Southwark. In conclusion, it may be stated that the aggregate mortality in London during May from these principal infectious diseases was 7.7 per cent, below the average in the corresponding period of the five preceding years.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MAY, 1920.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1919.	Notified Cases of Infectious Disease.										Deaths from Principal Infectious Diseases.										Deaths from all causes.	Death-rate per 1000 living.	
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhoea and enteritis (under 2 years).	Total.			Annual rate per 1000 persons living.
LONDON	4,352,300	1	959	835	—	23	—	33	178	12	—	2093	6.3	—	115	11	67	85	7	65	350	10	4145	12.4
West District:																								
Addington	143,924	—	23	32	—	1	—	—	6	—	—	59	5.3	—	9	—	3	2	—	1	15	1.4	145	13.1
Hammersmith	157,885	—	36	27	—	1	—	—	—	—	—	71	5.9	—	—	—	—	—	—	8	15	1.2	152	12.5
Hammersmith	150,911	—	10	19	—	—	—	—	—	—	—	31	3.1	—	—	—	—	—	—	10	1.0	128	12.7	
Fulham	152,545	—	52	47	—	2	—	—	4	—	—	111	9.5	—	—	—	4	2	—	9	0.8	140	12.0	
Chelsea	69,573	—	16	8	—	—	—	—	—	—	—	29	6.2	—	—	—	—	—	—	—	—	—	57	12.3
City of Westminster	127,533	—	31	17	—	3	—	—	—	—	—	58	5.9	—	—	—	—	—	—	2	0.2	114	11.7	
North District:																								
St. Marylebone	97,953	—	15	11	—	—	—	—	2	5	—	31	4.5	—	—	—	—	—	—	—	7	0.9	83	11.7
Hampstead	11,012	—	12	11	—	2	—	—	—	—	—	27	4.0	—	1	1	—	2	—	3	7	0.4	51	7.6
St. Pancras	219,434	—	32	57	—	1	—	—	—	1	—	100	5.9	—	—	—	—	—	—	1	25	1.5	214	12.7
Islington	323,034	—	53	65	—	1	—	—	4	12	1	136	5.5	—	6	1	3	11	—	4	25	1.0	329	13.3
Stoke Newington	50,994	—	10	10	—	—	—	—	—	—	—	17	4.3	—	9	2	7	—	—	3	26	1.0	54	13.8
Hackney	218,736	—	48	52	—	3	—	—	—	10	—	116	7.0	—	3	—	7	7	—	1	20	1.2	165	11.1
Central District:																								
Holborn	59,156	—	4	15	—	—	—	—	—	—	—	21	7.2	—	—	—	—	—	—	—	—	—	38	13.0
Finsbury	75,777	—	13	13	—	—	—	—	—	—	—	33	6.6	—	—	—	—	—	—	—	—	—	80	13.9
City of London	11,733	—	2	2	—	—	—	—	1	1	—	4	3.8	—	2	1	2	—	—	2	9	1.6	25	23.5
East District:																								
Shoreditch	96,134	—	33	22	—	—	—	—	1	1	—	55	7.3	—	—	—	—	—	—	—	—	—	96	12.8
Bethnal Green	112,765	—	44	41	—	—	—	—	4	1	—	80	9.5	—	2	1	4	2	1	3	15	1.8	128	14.8
Stepney	212,505	—	75	43	—	—	—	—	—	—	—	137	7.7	—	—	—	—	—	—	—	—	—	254	14.8
Poplar	153,644	—	45	43	—	1	—	—	—	—	—	93	8.3	—	11	—	3	9	1	6	25	1.5	254	14.8
South District:																								
Southwark	179,371	—	55	37	—	—	—	—	—	—	—	73	5.3	—	2	—	3	3	—	—	16	1.2	179	13.0
Bermondsey	124,259	—	23	17	—	—	—	—	—	—	—	45	4.7	—	9	—	—	—	—	—	15	1.7	122	13.5
Lambeth	212,505	—	75	43	—	—	—	—	—	—	—	137	8.3	—	—	—	3	2	—	—	14	0.6	271	12.5
Wandsworth	189,318	—	23	23	—	—	—	—	—	—	—	84	6.9	—	5	—	2	5	—	—	24	2.0	178	14.6
Camberwell	133,475	—	63	57	—	—	—	—	—	—	—	153	6.2	—	11	1	2	4	—	4	18	0.7	241	9.4
Greenwich	111,255	—	31	19	—	—	—	—	—	—	—	121	5.8	—	10	1	6	—	—	—	23	1.7	224	10.7
Lewisham	124,259	—	23	11	—	—	—	—	—	—	—	54	6.3	—	10	1	1	—	—	1	11	1.3	100	11.7
Woolwich	124,259	—	45	43	—	—	—	—	—	—	—	93	7.6	—	2	—	3	—	—	—	6	0.8	106	14.0
Woolwich	124,259	—	23	11	—	—	—	—	—	—	—	47	4.5	—	2	—	1	2	1	—	7	0.5	150	11.7
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	0.6	123	12.7

* Including membranous exanthema.

Correspondence.

"Audi alteram partem."

PERICARDIAL FRICTION AND CORONARY THROMBOSIS.

To the Editor of THE LANCET.

SIR,—In an annotation in THE LANCET of June 5th (p. 1232) you call attention to transient pericardial friction as a sign of coronary thrombosis, and to six cases reported by Dr. L. W. Gorham, of Albany. You speak of this condition as "almost unrecognised," and "not mentioned in the text-books." Dr. Gorham's cases are very interesting, but it is hardly true that patches of pericarditis at the sites of coronary thrombosis have not been fully recognised in England. If your readers will do me the honour to turn to my work on "Diseases of the Arteries," Vol. II., pp. 460ff, they will find these events discussed at some length. The occasional relation to angina pectoris also is indicated, and suggestions made to explain the occurrence of anginal pains in some cases in which, with coronary thrombosis, there is no pericarditis.

I admit I have not had the good fortune to meet with the considerable pathological proofs which have fallen to the lot of Dr. Gorham, but do not let us in England appear ignorant of the subject.

I am, Sir, yours faithfully,

Cambridge, June 12th, 1920.

CLIFFORD ALLBUTT.

WAR OEDEMA AND EPIDEMIC DROPSY.

To the Editor of THE LANCET.

SIR,—I have read the letter by Dr. J. A. Nixon in THE LANCET of April 24th on the subject of War Oedema and Epidemic Dropsy. I do not consider that any confusion will result from Dr. A. D. Bigland's valuable article on "Oedema as a Symptom in So-called Food-deficiency Diseases"; on the contrary, it gives a very clear and complete account of our present knowledge of the subject. Indeed, Dr. Nixon himself somewhat obscures the issues when he states that "the disease called by Macleod epidemic dropsy, with its itching, burning, and erythema or urticaria which preceded or accompanied the anasarca, was probably ankylostomiasis." In the course of my investigations on the Etiology of Epidemic Dropsy in India, published in the Scientific Memoirs of the Government of India, Nos. 45 and 49, I obtained no evidence that the disease was ankylostomiasis; on the other hand, the results of my researches pointed definitely to epidemic dropsy, as seen by me in Calcutta and other places in India, being a form of food-deficiency disease. The statement that "this dropsical disease was by no means confined to the impoverished and sickly" proves nothing, because it is necessary to remember in this relation that the diet of well-to-do people, although expensive, may be, from the modern view-point, nutritionally deficient; thus highly polished rice, which is consumed by the richer classes in India, is more costly than the coarser varieties of rice, but, as is now well known, the former is more deficient in vitamins than the latter.

I am, Sir, yours faithfully,

E. D. W. GREIG.

Pasteur Institute of India, Kasauli, May 21st, 1920.

THE STANDARDISATION OF COLOUR PERCEPTION.

To the Editor of THE LANCET.

SIR,—I have read Mr. Herbert Parsons's letter in THE LANCET and have to thank Mr. Percy Dunn for his reply in your last issue. I shall welcome Mr. Parsons's attack on my views, but I hope it will not appear in a lay paper. The editors of different lay papers have received communications depreciating my work, and though none of these have been inserted, in any case I wish to reply through a scientific medium. Mr.

Parsons should be the last person to belittle my work, as he is now using my methods after having opposed them long and fiercely. In 1889, as member of the International Code of Signals Committee, I constructed the lantern, which is now the official test of the navy, for the Board of Trade. Opinion at that time, however, was in favour of the wool test and the non-use of colour names. A special committee of the Royal Society was appointed which recommended the wool test. This discredited me for many years. The wool test is now obsolete, as more than 50 per cent. of dangerously colour-blind persons can pass it and a very large percentage of normal-sighted are rejected. Yet in 1912, in a new edition of his book, Mr. Parsons wrote:—

"The fundamental axiom in colour testing is that no importance should be attached to the naming of colours..... Holmgren's wools are sufficiently good."

This statement was made when nearly the whole world had recognised the inefficiency of the wool test and the necessity for the use of colour names. In the Ophthalmological Section at the British Medical Association meeting at Brighton, 1913, a resolution was proposed condemning the wool test. Mr. Parsons was the sole member who voted against the resolution.

I have for many years whenever a foreign scientist interested in vision has visited me, and has told me that he was going on to one of my opponents, requested him to let me know of any objection made so that I could answer it. In every case on returning he has told me that certain particular people, the same in every case, had nothing good to say of my work, but were quite unable to point out any fact or deduction which was wrong. I naturally look forward to having something to which I can reply.

I am, Sir, yours faithfully,

F. W. EDRIDGE-GREEN.

London, June 12th, 1920.

To the Editor of THE LANCET.

SIR,—Mr. Percy Dunn's *saeva indignatio* has led him into making some rhetorical exaggerations. "The 100 per cent. of those who have failed to prove that any of his statements are wrong" is one such. The following is an example refuting this pronouncement. Lord Rayleigh stated that he could distinguish between the wave-lengths included in a monochromatic division to the extent of discriminating between the colours of the two D lines.¹ Dr. Edridge-Green traversed this statement and attributed the error to "the admixture of small quantities of white and coloured light and to certain physiological influences."² Dr. Wm. Watson conclusively disproved any such influence of admixture with white light,³ and found that 14 observers gave the following mean values with sodium light: width of monochromatic patch = $4\frac{1}{2} \mu$; difference in wave-length easily detected as a change in hue = $1\frac{1}{4} \mu$. It is further to be remembered that there is a wealth of argument against some of Dr. Edridge-Green's theories, so that opponents may not have felt it necessary to controvert them. Thus, I know of, at any rate, one scientist whom Dr. Edridge-Green claims as a strong adherent, who yet dissents entirely from his theory as to the action of the visual purple.

With regard to the "prejudicial attitude" assumed against Dr. Edridge-Green, this, if true—and I believe it originated in events occurring before I became actively interested in the subject—was a personal matter and does not affect the scientific arguments. I have yet to be convinced that the Royal Society was so influenced as to commit the worst crime against science—that of perverting scientific truth from ulterior motives.

I have already said that I consider Dr. Edridge-Green's colour perception lantern good, and it is not surprising, for reasons stated in my last letter among others, that various Government departments have adopted it. I fail to follow Mr. Dunn's arguments that a test requiring skilled knowledge is better than one more "fool-proof." Would a test for visual acuity be

¹ Proc. Roy. Soc. B., 1910, vol. lxxiii., p. 458.² Ibid., 1911, vol. lxxiv., p. 116.³ Ibid., 1911, vol. lxxiv., p. 119.

letter if a high degree of special training were required to use it? That depends. I take it, upon the degree of accuracy required for the given purpose. I must confess that I cannot interpret the innuendo contained in the last sentence of Mr. Dunn's letter.

I am, Sir, yours faithfully,

J. HERBERT PARSONS.

Queen Anne-street, Cavendish-square, W., June 14th, 1920.

POISONING BY EXHAUST GAS.

To the Editor of THE LANCET.

SIR,—On May 8th I was called to see two children, aged respectively 11 and 6 years, with the following history:—

They started to drive 10½ miles in a half-covered business car, open to the front, which contained groceries. They were inside the car, the mother sitting on the front seat by the driver. When they had driven 10 miles the mother heard one of the children crying; she got down and found the younger child delirious, with her head fallen forward; the elder child was trying to comfort the younger one. She got them out of the car, when the elder child staggered about the road and fell down. She put them on the seat by the driver and came on to Lichfield.

I found them both in a state of semi-collapse. Pulse small and feeble. Faces pale. No cyanosis. They were constantly rick, which ultimately became bilious in character. In the evening the elder child complained of headache. The younger child was better, but developed a croupy cough during the night, with no physical signs and no infection of the fauces. The next day they were better and taking food, but the elder child was feeble and wanted to lie down when she was dressed. They went home in the afternoon, and I am told that the cough in the younger child continued for three or four days. They ultimately got quite well.

No. 3 spirit was being used in the car, the exhaust pipe of which only reached half-way to the bottom of the car. What was the gas which caused these symptoms? Does No. 3 spirit contain benzol, which, I believe, contains toluol and xylo? Was it a case of toluol poisoning?—I am, Sir, yours faithfully,

GEORGE W. HOMAN.

Lichfield, Staffordshire.

•• Cases of serious disturbance to health by the inhalation of light hydrocarbons, used as propellants of motor vehicles, are well known, but the above letter raises the question whether, in the circumstances described, the poisoning was due to leakage of hydrocarbons or to the products of their complete or incomplete combustion. The symptoms described are in accord with those produced by benzene inhalation (or petrol itself, and toluene vapours (methyl-benzene) act much in the same way as benzene. References to similar occurrences will be found in issues of THE LANCET dated April 5th, 1913 (p. 975), Jan. 27th, 1917 (p. 161), and Oct. 12th, 1918 (p. 494).—Ed. L.

THE "TOXICITY" OF METHYLENE-BLUE.

To the Editor of THE LANCET.

SIR,—In your issue of Feb. 17th, 1917, you were good enough to insert a short letter on the above subject. Since then, while employed as consultant in malaria for the Scottish Command, I have been able to make more extended researches on the value of this remedy in the treatment of malaria and other affections, and also especially to note the presence or absence of toxic symptoms.

The total quantity of methylene-blue used in one hospital alone (the Edinburgh War Hospital, Bangour) amounted to over two pounds in weight, representing about 5000 doses of 3 gr. each. The number of malaria cases treated numbered over 2000. It may therefore justly be claimed that conclusions reached from observations on such a wide base are worthy of consideration.

I wish to combat the idea that methylene-blue possesses toxic properties, and the following few facts regarding the results obtained by its use may be of interest; a fuller statement on these points will be published later.

The drug was chiefly used in the treatment of malaria and flagellate infections of the intestine. In

acute malarial attacks it was found that though in many cases favourable results were obtained, the efficacy of methylene-blue in cutting short attacks was distinctly inferior to quinine. On the other hand, it frequently proved a valuable remedy in preventing relapses, especially in cases where quinine, administered by the mouth or by intramuscular and intravenous injections, had signally failed.

The results obtained in flagellate infections were fairly good, though often unsatisfactory.

Regarding "toxicity," although some of the patients received over 400 gr. in a course of treatment extending over several weeks, beyond occasional complaints of slight bladder irritation no troublesome symptoms were manifested which could be attributed to the use of the drug. It may therefore be accepted that in methylene-blue we possess a remedy of great value; and that, provided a pure supply is obtainable, it may be freely used without fear of "toxic" symptoms resulting. I am, Sir, yours faithfully,

D. G. MARSHALL.

Edinburgh, June 10th, 1920.

THE SURGICAL TREATMENT OF PROLAPSE OF THE UTERUS AND VAGINA.

To the Editor of THE LANCET.

SIR,—I do not think it is my business to attempt to disperse the fog that enshrouds the thoughts and impressions of Mr. R. H. Paramore. That he lacks lucidity and is, therefore, unsuited to teach was amply manifest in his first letter. I ask you to imagine, Sir, a medical student endeavouring to understand and assimilate what, no doubt, Mr. Paramore considered words of wisdom. Several intelligent practitioners have assured me that they obtained no glimmering of light after reading his letter through more than once. I have never before myself been accused of nebulosity, and on the present occasion Mr. Paramore would have been well advised if he had avoided the cheap form of argument that is abhorred by every school-boy. However, my only concern in taking notice of his first letter was to prevent those who might read his remarks imagining that the statements concerning myself were correct, for, as Mr. Paramore says, criticism in THE LANCET receives wide publicity.

It is necessary for me once more to controvert the intentional inaccuracies of Mr. Paramore, who, in spite of being exposed for similar inaccuracies in his first letter, in your issue of June 12th, not only attributes to me more views and statements I have never held or made, but also makes two definite aspersions: one is that I do not know the meaning of the word "floor"; the second implies that I do not understand the significance of the adjective "congenital." I am afraid I must ignore any further puerile insinuations of this sort until I have some evidence that Mr. Paramore has taken the trouble to read my book, "The Principles of Gynecology," third edition, if the abstract of my lecture in THE LANCET, which should be read as stated in conjunction with this work, does not make everything clear to him. In my book he will discover the term "congenital" qualified on p. 212 and elsewhere, as it was qualified in my lecture, and he will find the pelvic floor discussed on p. 47, and in my lecture I described, for want of a better name, as I stated definitely at the time, an operation for "the reconstruction of the posterior segment of the peritoneal aspect of the pelvic floor"—indeed, I asked for a better description of the procedure.

We must have lucidity and honesty, and until we get them there will be much diverse teaching in regard to the surgical treatment of prolapse, which, after all, was the subject of my lecture. Had Mr. Paramore heard some of the remarks I have heard from doctors and patients regarding so-called cures for prolapse he would have realised that facts and figures are important. (Honesty may be assumed until the contrary has been proved, in accordance with British traditions of justice.) Moreover, good operations are the result of good reasoning, whatever may be Mr. Paramore's subsequent interpretations of them, and technique is of considerable importance. In my lecture I was speaking to a large

number of surgeons of experience who could correctly interpret the reasons for my adopting the procedures advocated without my treating my audience to a discourse on elementary anatomy. I have, consequently, suggested that Mr. Paramore should publish his own figures and methods, if he has any worthy of publication. In regard to figures there is a general idea that Mr. Paramore has himself done comparatively few operations for prolapse, and this is supported by his statement that he has performed only twice the interposition operation, although he approves of it. If this idea be erroneous it would be well for him to dispel it. As to methods, if Mr. Paramore has any new procedure why is he so secretive about it? I must leave your readers to draw their own conclusions. Meanwhile, it is surely a little presumptuous of Mr. Paramore to attempt to interpret procedures thought out and introduced by others, some of which he has never seen and concerning the object of which he has not even troubled to inquire.

I am afraid I have written plainly: it is time someone did. Critics who adopt the methods to which I have referred must be checked. Even abuse is much preferable to perversions of one's views and statements.

I am, Sir, yours faithfully,

W. BLAIR BELL.

Liverpool, June 13th, 1920.

THE IMPORTANCE OF IMMEDIATE SELF-DISINFECTION.

To the Editor of THE LANCET.

SIR,—Neither Lord Willoughby de Broke nor the society over which he presides believes that the establishment of disinfectant centres would be of much value in reducing venereal disease, and during his speech on June 3rd Lord Willoughby de Broke brought forward powerful arguments against the practicability of ablation centres. By inference the report in your issue of June 12th suggests that Lord Willoughby de Broke is in favour of the establishment of disinfectant centres, which is not the case, and I write lest a misunderstanding may arise as to the aims and objects of this society, which are to instruct the public as to (a) the vital importance of self-disinfection at the time of exposure to risk as a preventive of venereal disease, and (b) the methods of application.

I am, Sir, yours faithfully,

H. WANSEY BAYLY,

Hon. Sec., Society for the Prevention of Venereal Disease.
143, Harley-street, W.1, June 12th, 1920.

AGE AND VENEREAL INFECTION.

To the Editor of THE LANCET.

SIR,—At the instigation of Colonel L. W. Harrison last year I made a private inquiry into the sex-history of 600 consecutive V.D. cases, chiefly with a view to determining the infection exposure ratio; this worked out at 1:15.6. Dr. G. G. Johnstone observes in THE LANCET of June 12th that there is a sharply defined maximum at the age of 18, when illicit coitus begins. I found that 469 out of the above series of 600 stated that their first sexual intercourse took place between the ages of 17 and 21. It is an important sociological fact, hardly needing to be proved by statistics, that normal sexual man is most prone to indulge in pseudo-romance during the latter period of exuberant adolescence, when ideals may be in a transition phase.

My predecessor, Captain W. Craik, in statistics carefully kept over a series of several thousand cases, found that 86 per cent. (I quote his figures from memory) were infected by "amateurs." Also, that 24 per cent. of the men were teetotalers and few claimed to be drunk at the time.—I am, Sir, yours faithfully,

JOHN DONALD, M.D., B.Sc., D.P.H.,
Major.

De Montfort-square, Leicester, June 13th, 1920.

PERIOD OF SERVICE FOR GRATUITY TO R.A.M.C. CAPTAINS.—A Royal Warrant states that captains of the R.A.M.C. who receive a permanent commission in this corps subsequent to May 25th, 1920, must complete eight and a half years total commissioned service in order to qualify for the gratuity of £1000 payable to retiring officers.

Medical News.

UNIVERSITY OF CAMBRIDGE.—The dates for the next examination for the Diploma of Psychological Medicine have been fixed as follows: for Part I, Oct. 13th, 14th, and 15th; for Part II, Dec. 1st, 2nd, and 3rd. The examination for Part I will be held in Cambridge, that for Part II in London. Courses of instruction for both parts will be held in Cambridge from July 19th to August 21st, and will include lectures and demonstrations. For Part I: Dr. O. R. A. Thacker, Anatomy and Physiology of the Nervous System; Dr. J. F. Lowson, Psychology. For Part II: Dr. E. Prudden, Psychopathology; Dr. M. A. Archdale, Diagnosis, Prognosis, and Treatment of Mental Disorders. The fee for the full course is 10 guineas; the course for either part may be taken separately at a fee of 5 guineas. Entries should be sent to Dr. E. D. Adrian, Trinity College, Cambridge, from whom further information may be obtained.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

An ordinary meeting of the Council was held on June 10th at the College, Sir George Makins presiding. A report was read from the Board of Examiners in Anatomy and Physiology for the Fellowship stating that at the examination, concluded on May 15th 168 candidates were examined, including 52 admitted under the special war conditions, of whom 38 were successful, and 116 admitted under the ordinary conditions, of whom 36 were successful.—A report was read from the Court of Examiners respecting candidates found qualified for the Diploma of Fellow, and diplomas were granted to 39 candidates mentioned in this report. The names will be published next week, as well as those of the candidates found qualified for the Licence in Dental Surgery. The following were elected Members of the Board of Examiners in Anatomy and Physiology for the Fellowship for the ensuing year:—

Anatomy.—J. Ernest Frazer, F.R.C.S., W. F. Haslam, F.R.C.S., Gordon Taylor, O.B.E., F.R.C.S., A. Ralph Thomson, F.R.C.S., F.R.C.S., F. A. Bainbridge, M.D., J. B. Leathes, M.D., H. W. Lyle, M.D., A. Rendle Short, M.D.

The following were elected Examiners under the Conjoint Examining Board in England for the ensuing year:—

Elementary Biology.—J. P. Hill, D.Sc., T. W. Shore, M.D., F.R.C.S., Arthur Thomson, F.R.C.S.

Anatomy.—D. Hepburn, C.M.O., G. M. Edin., F. G. Parsons, F.R.C.S., Arthur Thomson, F.R.C.S.

Physiology.—G. A. Buckmaster, M.D., H. E. Roaf, M.D.

Midwifery.—J. S. Fairbairn, F.R.C.S., Cuthbert Lockyer, F.R.C.S., G. D. Robinson, M.D., G. F. Darwall Smith, F.R.C.S.

Public Health.—Sir F. W. Andrews, M.D., F. N. Kay Menzies, M.D.

Tropical Medicine and Hygiene.—G. C. Lowe, M.D., H. B. G. Newham, M.D.

The President reported that the five surgeons who were elected honorary Fellows of the College on Feb. 12th last, would attend to receive their diplomas on Thursday, July 24th next, and that it was proposed that the diplomas should be presented to them at 7.30 p.m. on the same day, and that they should afterwards be entertained to dinner in the College by the Council.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the monthly meeting of the Faculty, held on June 7th, the following were admitted (after examination) as Fellows:—

Norman Stewart Bruce, James Alphonse Conway, John Norman Cruickshank, John Grainger, Stuart Spence Meighan, Joseph Henry Patterson, Daniel McKinnis Reid, William Robertson Snodgrass, Ian Disher Suttie, and Gavin Young.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

The annual election of President and Vice-President and Council of the Royal College of Surgeons in Ireland, held last week, resulted in the election of Mr. Edward H. Taylor, the outgoing Vice-President as President, and of Sir William I. de C. Wheeler as Vice-President. The latter was opposed by Mr. R. C. B. Maunsell, and considerable interest was taken in the contest. The new president, Mr. Edward Taylor, has been since 1916 Regius Professor of Surgery in the University of Dublin and has been for many years surgeon to Sir Patrick Dun's Hospital. Prior to his appointment as Regius professor he was for some ten years professor of surgery in Trinity College. He is the author of well-known text-books on Applied Anatomy and on Operative Surgery. Sir William Wheeler, who succeeds Mr. Taylor as vice-president, is surgeon to Mercer's Hospital and to the Orthopaedic Centre for Pensioners. He was a consulting surgeon to H.M. Forces in Ireland during the war, and was recently awarded a knighthood in recognition of his services. He has contributed many surgical articles to the *Medical literature*, and he is a regular contributor to the *Medical Annual*.

LONDON MEDICAL EXHIBITION.—The tenth exhibition is arranged to be held in the Central Hall, Westminster, S.W., on Oct. 4th, 5th, 6th, 7th, and 8th next.

THE Cavendish Lecture will be delivered before the West London Medico-Chirurgical Society by Professor C. S. Sherrington on Friday next, June 25th, at 8.15 P.M., at the Kensington Town Hall. The subject taken is "Posture." The lecture will be preceded by a reception at 7.45 P.M. There will be medical and surgical exhibits.

ANATOMICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—The annual summer meeting of this society will be held at Cambridge on Friday and Saturday, July 2nd and 3rd, following upon the meeting of the British Medical Association at the same place. The programme promises to be full of interest and importance. Several papers on the Morphology and Development of the Central Nervous System have been promised, while such themes as the "Structure of the Earliest Land Vertebrates," "Partial Transposition of the Mesogastric Viscera," and "Avian Structure as Bearing upon Problems of Bird Migration" will provide fertile fields for discussion.

ROYAL SOCIETY OF MEDICINE.—The annual election of officers and Council for the ensuing year will be held at the annual general meeting of Fellows at the Society's House on Wednesday, July 7th, at 5 P.M. The Council has nominated the following:—

As President: Sir John Bland-Sutton, F.R.C.S.
As Honorary Treasurers: William Pasteur, C.B., C.M.G., M.D.; C. H. Faege, M.S.

As Honorary Librarians: Raymond Crawford, M.D.; Walter G. Sisson, M.S.

As Honorary Secretaries: A. M. H. Gray, C.B.E., M.D.; W. Gillies Bell, F.R.C.S.

Other Members of Council: Lady Barrett, C.B.E., M.D.; J. Charlton Brisbane, M.D.; J. F. Gordon Dill, M.D.; John Fawcett, M.D.; J. Herbert Fisher, F.R.C.S.; Robert Hutchison, M.D.; Herbert S. Pendlebury, F.R.C.S.; Sir D'Arcy Power, K.B.E., F.R.C.S.; Guy T. M. Wood, M.D.

Section of Laryngology.

The second annual Summer Congress will be held at the Royal Society of Medicine, 1, Wimpole-street, London, W., on June 24th and 25th. An exhibition of pathological specimens and drawings will be held from 10 A.M. to 6 P.M. during the two days of the Congress, and there will also be an exhibition of surgical instruments and drugs from 2 P.M. on the 24th to 1 P.M. on the 25th. On Thursday, June 24th, at 2.30 P.M., a series of papers on cancer of the throat will be read by Sir Charters Symonds, Mr. Wilfred Treutter, Dr. Logan Turner, Mr. Edward D. D. Davis, and Sir St. Clair Thomson. On Friday, June 25th, at 10 A.M., miscellaneous communications will be given by various members, including Dr. A. Brown Kelly, Sir William Milligan, Dr. Watson-Williams, Mr. Lawson Whale, Dr. Irwin Moore, and Mr. W. M. Mollison. At the afternoon session demonstrations will be given by Dr. Llewelyn Powell, Dr. Felix Rowd, Dr. F. E. Shipway, Dr. H. E. G. Bayly, Dr. E. P. Cumberbatch, Mr. Hayward Pinch, Mr. Layton, Mr. Norman Patterson, and Dr. Irwin Moore. On the first day of the meeting a dinner will be held at the Café Royal at 7.30 P.M. Applications for tickets (12s. 6d.) should reach one of the secretaries, Dr. Irwin Moore, 30A, Wimpole-street, W.1, or Charles W. Hope, 22, Queen Anne-street, W.1, not later than Monday, June 21st.

THE TREATMENT OF TUBERCULOSIS IN BELFAST.

Dr. A. Trimble, as medical adviser to the Belfast Insurance Committee, has just presented his report dealing with the 1919. The death-rate from pulmonary tuberculosis in Belfast, which was 2.7 per 1000 in 1918, has fallen to 2.1 in 1919. Of the total of 2377 persons examined 887 (37 per cent.) were insured and exempt persons examined on behalf of the Committee, the remainder, 1490 (62.7 per cent.) being non-insured persons examined under the corporation scheme. Of those examined, 8 per cent. were found to be tuberculous or suspect. Dr. Trimble says that while the large number of females employed industrially in Belfast accounts in some measure for the high tuberculosis mortality amongst them as compared with females in large English towns, yet the higher rate of tuberculosis amongst females in the rest of Ireland over the rate amongst males requires some other explanation. As to sanatorium treatment, he thinks it is the best form of treatment in the incipient state of the disease, "but the continuance of improvement largely depends on the patient after leaving the sanatorium attending the dispensary for further treatment," for in advanced cases the sanatorium method can only mitigate the suffering of the patient. Of 1540 new cases treated, 23 were "apparently cured," while in 100 the disease was "quiescent," 175 were greatly improved, 721 improved, 630 in statu quo, and 117 worse. Reference is made to the serious effect of over-exercising on the lung problem. The report is, in existing circumstances, depressing.

MIDDLESEX PANEL COMMITTEE: PRESENTATION TO DR. H. B. BRACKENBURY.—At the monthly meeting of the Middlesex Panel Committee on June 10th Dr. Brackenbury, who has acted as chairman of the Committee since its inception in 1914, was presented by the members of the Committee with a solid silver coffee pot, sugar bowl, and cream jug. The presentation was made by Dr. C. F. T. Scott, vice-Chairman of the Committee, in a felicitous speech in which he attributed the success of the Committee to Dr. Brackenbury's able chairmanship and statesmanlike qualities. Dr. Brackenbury, who was enthusiastically received, thanked the Committee for their kindness, stating that in all his public work he had been governed by the desire to serve the best interests of his fellow insurance practitioners and to promote the public welfare.

Reference was made in the course of the proceedings to the fact that Dr. Brackenbury has been chosen as Liberal candidate for East Walthamstow.

PROPOSED AMALGAMATION OF BRISTOL HOSPITALS.

—At a meeting of the governors of the Bristol General Hospital, held on June 14th, it was decided to continue the discussion of the scheme of hospital amalgamation that has been proposed. This scheme already has the support of several of the Bristol institutions, but it is held by the committee of the General Hospital to need considerable modification if their institution is to enter the proposed amalgamation.

DEATH OF DR. FRANCIS McLAUGHLIN.—The death is announced of a leading Londonderry medical practitioner, Dr. Francis McLaughlin, which occurred at his residence in that city on June 9th from pneumonia, contracted, it is believed, from a chill during a long drive to see a patient. The deceased, who studied in Queen's College, Galway, where he was a scholar, graduated M.D. with honours in the Royal University of Ireland in 1881. Starting practice in Londonderry, he soon acquired a large clientele, and was extremely popular with all classes. He was a J.P. for the city of Londonderry, where, on the morning of his decease (so little was his death anticipated), the recorder appointed him as medical referee in a compensation claim.

MANCHESTER SCHOOLS FOR MOTHERS.—The annual report of the Manchester group of "schools for mothers" has recently been issued. The average number of children attending the various welfare centres each week was 1440, as compared with 980 in 1918 and 803 in 1917. During the year two new centres with antenatal clinics were formed by the Public Health Department. The experience of infant welfare centres has shown clearly that unguided instinct can no longer be regarded as the only requisite for the successful rearing of children, and consequently schools for mothers have been established in various centres. The mothers are taught how to promote the comfort of their children in the matter of suitable food, clothing, and general hygiene. A considerable part of the expenses of the schools for mothers is borne by the corporation, through the association of these schools with the Public Health Department, but even with this assistance the cost is not being met, and additional public support is required.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—His Majesty the King has been graciously pleased to command that the Society of Tropical Medicine and Hygiene shall henceforth be known as "The Royal Society of Tropical Medicine and Hygiene." The formation of a society to promote the study of the diseases and hygiene of warm climates was considered by a number of interested persons in January, 1907, at a meeting at the Colonial Office. In due course the society was constituted, with Sir Patrick Manson as President and Major Ronald Ross as Vice-President. The first ordinary meeting was held in June, 1907, and since that date, except during and subsequent to the war when the number of meetings was reduced, eight meetings have been held yearly and 13 volumes of Transactions have been published. The meetings have been well attended, the number of Fellows present rarely falling below 50; and on these occasions Fellows and their friends have the opportunity of exchanging views with workers from all parts of the world. At the end of the first year there were 186 Fellows, and the number is now 660. In the last 12 months 175 Fellows have been elected. From the first the society has been open to all persons interested in its objects, whether medical men or not, who are approved by the Council, and many veterinary practitioners are included amongst its Fellows. The Presidents in succession to Sir Patrick Manson have been Sir Ronald Ross, Sir William Leishman, Sir Havelock Charles, the late Dr. F. M. Sandwith, and Sir David Bruce. The President is now Professor W. J. Simpson. The subscription to the society is 1 guinea, but a rise to 1½ guineas is under consideration. The society's headquarters are at 11, Chandos-street, Cavendish-square, London, W.

A Royal Charter has been granted to the Incorporated Society of Trained Masseuses.

OPHTHALMIA NEONATORUM IN BOMBAY.—The Blind Relief Association of Bombay is embarking upon a propaganda campaign for reducing the incidence of infantile ophthalmia. It has published a pamphlet describing preventive measures to be taken immediately on the birth of a child. Help in carrying out the precautions is to be obtained from existing local bodies, such as the Sanitary Association and the Health Visitors and Infant Welfare Committee.

NORTH-EAST LONDON POST-GRADUATE COLLEGE: VACATION COURSE.—A special post-graduate course will be held at the Prince of Wales's General Hospital, Tottenham, N., from Monday, July 19th, to Saturday, July 31st, inclusive. It will comprise morning demonstrations on clinical methods, including laboratory methods of the examination of cases, and in the afternoons demonstrations on groups of illustrative cases, general hospital practice in the various departments, and clinical lectures and consultations. On Saturday morning clinical demonstrations will be given in affiliated special hospitals. The fee for the course is 3 guineas, or 2 guineas for either week. Further particulars, with syllabus as soon as it is ready, may be obtained from the Dean, at the hospital, or at 19a, Cavendish-square, W. 1.

Parliamentary Intelligence.

HOUSE OF LORDS.

THURSDAY, JUNE 10TH.

The Census Bill.

Viscount ASTOR, in moving the second reading of the Census Bill, said that hitherto a separate Act of Parliament had been passed for each census. It was proposed that this Bill should be a perpetual Census Bill, empowering His Majesty from time to time, by Order in Council, to direct that a census should be taken for Great Britain or for any part of Great Britain. Power was taken to make a census every five years instead of every ten years, so as to secure greater accuracy for the fundamental figures as to population. By Clause 6 it was provided that a local census might be made subject to the approval of the Ministry of Health.—The Bill was read a second time.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 9TH.

New Indian Army Pension Lists.

Mr. AUBREY HERBERT asked the Secretary for India whether, in view of the anxiety and uncertainty in the minds of many Indian Army officers who were contemplating retiring owing to the changed conditions of service in India, but could not do so until the new pension rates were published, he could now state when these rates would be published.—Lieutenant-Colonel ASHETON POWNALL asked the Secretary for India whether the new scale of pensions for retired officers of the Indian Army had yet been approved.—Mr. MONTAGU replied: A communique giving particulars of the new scale of pensions for officers of the Indian Army and Indian Medical Service was sent to the press on June 3rd and published the following day.

Extra Nourishment for Tuberculous Persons.

Mr. CHARLES EDWARDS asked the Minister of Health whether local War Pensions Committees were authorised to make provision for extra nourishment for ex-Service men in sanatoriums or at home who were suffering from tuberculosis and in need of special diet, and if he would make provision for similar grants to be made to insured persons who were suffering from the same cause.—Dr. ADDISON replied: I understand that this provision is made in the case of ex-Service men suffering from tuberculosis who are under treatment at home, and Insurance Committees are empowered to make similar provision for other insured persons so far as the funds available for sanatorium benefit, after providing for other calls upon these funds, will allow. The question of providing "extra" nourishment for patients under treatment in sanatoriums is one which scarcely arises in practice. These patients receive the dietary provided by the institution, which is specially adapted to the needs of tuberculous patients and may be varied at the discretion of the medical superintendent to meet the special needs of individual cases.

Poor-law Officers and Reform of the Poor-law.

Mr. BRIANT asked the Minister of Health if he would withhold his assent to any scheme of a board of guardians for the reorganisation of its institutions or services prior to the introduction of a measure dealing with the Poor-law system as a whole until he was satisfied that amicable

arrangements had been made with the officers concerned; and if, in the event of Poor-law officers suffering monetary loss owing to a transfer of a portion of their duties to other authorities or offices, he would satisfy himself that the guardians had made adequate compensation for such loss as might be sustained by them.—Dr. ADDISON replied: It is already the practice to give full consideration to the position of any officers affected by a reorganisation of services.

Dental Legislation.

Mr. RAFFAN asked the Minister of Health if he could now state when it was proposed to introduce legislation for the purpose of carrying out the recommendations of the Select Committee on the Dentists Act, 1878.—Lieutenant-Colonel HURST asked the Minister of Health whether he was now able to make a statement as to the prospects of legislation this session in respect of the registration of dentists and dental practitioners.—Dr. ADDISON replied: I regret that, owing to the pressure of other legislation, the draft of this Bill is not yet completed, and I am unable to say when it will be introduced, though I hope it will be ready shortly.

Elimination of Slum Areas.

Mr. L'ESTRANGE MALONE asked the Minister of Health whether the powers given to local authorities under the Housing and Town-planning Act were sufficient to enable them to eliminate slum areas; and, if so, what steps were being taken to enforce these provisions.—Dr. ADDISON replied: I think that the powers under the Housing Acts are generally sufficient; but, as the honourable Member will appreciate, it is scarcely practicable to deal on a large scale with slum areas, or to undertake the demolition of houses, until much more has been done to meet the prevailing shortage of houses. Local authorities have been requested to proceed with the survey of the unhealthy areas in their district cases, and with the preparation of schemes in the most urgent cases. I will send the honourable Member a copy of the manual on the subject which has been issued.

Mr. MALONE asked the Minister of Health if he would state the extent of the slum areas, given in acreage, number of houses or number of rooms, which had been condemned as unfit for habitation since the creation of the Ministry of Health; the number of occupants so affected; and the numbers for whom new accommodation had been erected.—Dr. ADDISON replied: Since the creation of the Ministry of Health local authorities have submitted for confirmation improvement schemes for areas comprising 103 acres and 494 houses, occupied by 2933 persons of the working classes. New housing accommodation is proposed to be provided in connexion with these schemes for 2320 persons. These schemes are now being considered by my Department.—Mr. RAFFAN: Have any of these schemes been confirmed?—Dr. ADDISON: Several of them are being confirmed, but I cannot say how many. We do not propose to deal with them until more of the existing shortage is dealt with.—Mr. MALONE: Is not an acreage of 103 a very small percentage indeed of the slum areas of our industrial towns?—Dr. ADDISON: Of course it is, but schemes which are before us relate to vast areas of our slums. We cannot confirm orders until there is some prospect of sufficient additional accommodation to justify the demolition of these houses. We must do these things by stages.

Treatment Allowances of Disabled Men.

Mr. ALFRED DAVIES asked the Minister of Pensions whether treatment allowances could be withdrawn from a disabled man who, owing to his disability, was unable to follow his present or occupation, and who was receiving out-patient treatment but was certified fit for easy light work, or whether he was entitled to receive full-treatment allowance pending his return to his own employment.—Major TAYLOR (Parliamentary Secretary to the Ministry of Pensions) replied: For cases of out-patient treatment special provision is made by Article 6 of the Royal Warrant in the form of an allowance for loss of remunerative time. Full allowances at the maximum rate of pension (to which the honourable Member appears to refer) are only payable where a pensioner who is certified to need a course of treatment is judged to be unable in consequence to provide for his own support and that of his family. The question whether in any given case the time occupied in or other circumstances attending the course of treatment prescribed are such as to entitle the man to the maximum allowances must be decided on the facts of the case.

Medical Men and Motor-car Rebate.

Mr. RAMSDEN asked the Chancellor of the Exchequer whether, in the event of any rebate being granted to medical men whose work necessitates them running a motor-car, the same privilege would be extended to county coroners.—Mr. NEAL (Parliamentary Secretary to the Ministry of Transport) replied: As I stated on June 3rd, the Minister of Transport is unable to recommend a rebate of the proposed taxation of motor vehicles in the case of those used by medical practitioners.

THURSDAY, JUNE 10TH.

DANGEROUS DRUGS BILL.

Major BAIRD (Under Secretary to the Home Office), in moving the second reading of the Dangerous Drugs Bill, said that it gave effect to the International Opium Convention, signed at The Hague on Jan. 23rd, 1912. The purpose of the Convention was to bring under control throughout the world the traffic in opium and cocaine, and preparations derived from them, and to restrict their use to medical and other legitimate purposes. The Convention was signed on behalf of all the Powers represented, with the exception of Turkey and Serbia. Some of the countries, including Germany, failed to ratify the Convention before the outbreak of war, and it was never brought into operation. During the war Great Britain found it necessary to take action on her own account owing firstly to the spread of the cocaine habit, and secondly to the extensive smuggling of opium carried on in the East, which caused trouble and delay to our merchant shipping in connexion with China. Therefore, a Regulation, No. 491, was made under the Defence of the Realm Act, 1914, which enabled them to control the manufacture, sale, and distribution of cocaine; and a proclamation was issued, under the Customs Consolidation Act, to prohibit the import of cocaine or opium except under license of the Secretary of State. Those measures did not prove altogether successful, largely owing to the difficulty of controlling smuggling in the case of an article which could be brought in in such small quantities and so easily sold as opium. They believed that the only effective control would come by international coöperation. The Allied Powers attached so much importance to this question that the ratification of the International Convention was made one of the conditions of peace and was embodied in Article 295 of the Peace Treaty, which bound the contracting parties to bring the Convention into force and to enact the necessary legislation within 12 months of the coming into force of the Treaty. It became doubly important that they should have the power which this Bill would confer if it became an Act, because of the impending abrogation of the Defence of the Realm Regulations. The Bill was limited to carrying out the Convention except in one respect—namely, in Clause 8, Subsection (2), where powers were asked for to extend provisions not only to the derivatives of morphine and cocaine, but to any other alkaloid of opium, and any other drug of any kind which was likely to produce the same injurious effects. Another reason why they were anxious to have the powers which the Bill conferred upon them was that their representatives in China and Japan had repeatedly referred to the disastrous effects on the traffic which was being carried on with China in morphia and cocaine to a very large extent, and both China and Japan were signatories to the Convention.

Lieutenant-Commander KENWORTHY: When it is passed will this Bill be able to stop the whole of this great trade in morphia?—Major BAIRD said it was doubtful whether it would stop the whole of it, but the Bill embodied the best means which commended themselves to those who represented these 42 Powers at the International Convention, and it represented the results of their labours and their recommendations. It might not be perfect, but it was a great step in advance, and they hoped that if they got these powers they would be able largely to assist our Allies in Japan and our friends in China to deal with this very important and serious matter. Naturally, a big measure of this kind affected the interests of large bodies of their fellow countrymen, and the Pharmaceutical Society had made representations. Both with regard to their representations and others which they had had from the wholesale dealers they hoped to be able to meet them. As regarded the Pharmaceutical Society, they had already had an opportunity of considering the points which they advanced, and with one exception he hoped in Committee it would be possible to accept amendments which would meet their views. As regarded the wholesale dealers, they expressed a desire to put their views before the Home Secretary, but only so recently as a day or two ago, and therefore it had not been possible to meet them and discuss the question, but with regard to both these important bodies they were most ready to listen to any representations which would enable them to devise some amendments which would alleviate any legitimate hardships without weakening the force of the measure to which they attached very great importance. The details of the Bill were of a very technical character. Experience was imbued with the desire to restrict the use of this most valuable drug and to collaborate with other countries in reducing its uses to legitimate and proper preparations, and seeing that the Bill embodied the recommendations of this very competent body of men, representative of practically all the nations who assembled at The Hague in 1912, he hoped the House would be content to give them the second reading without further delay.

The Father of the Bill.

Dr. D. M'NAY congratulated the Home Secretary on the practical aspect of this question. The

history of this country in connexion with the drug habit all over the world and in connexion with the opium traffic had been one of the most disgraceful pages in our history, and one which we could never look back upon without a sense of shame. It was a hopeful augury for the League of Nations to see the Government associating themselves with other nations in such a humane Bill, and although on the surface the provisions made for the international aspect did not appear very drastic, still he hoped they would be more effective than they appeared to be. The drug habit was a matter which was well worth the attention of the Government, and he was glad they were beginning to take notice of it, and he was glad they were beginning to take notice of it. It was this great evil in the social structure of our country. It was a growing evil and seemed to grow *pari passu* with certain types of civilisation. There was not much of it in our country districts; as a rule these habits were learned, developed, and practised in towns, and especially the bigger ones. The Government had selected, perhaps, the principal drugs that were used—opium and its derivatives, morphia and cocaine. The manner in which the Government proposed to attack the drug habit was quite on the right lines, and with one or two slight modifications he saw no reason why they should not have their Bill. He did not know what the references to medical men and dispensers exactly meant. Very often the excuse given by people who were victims of the drug habit was that the doctor prescribed it for them for certain ailments, and, unfortunately, after the immediate need for it had passed the patient, finding the effects of it pleasant, continued it until he became a victim and could not get rid of it. He presumed what was meant by one of the clauses giving power to the Home Secretary for "regulating the issue by medical practitioners of prescriptions containing any such drug and the dispensing of any such containing any of these drugs would not be allowed to dispense it without a renewed prescription being given by the doctor. He did not know how many times a doctor might allow it to be dispensed without the renewed authority, but there should be some limit to that practice, otherwise they might go on taking the drug for a long time. He had often heard people who were addicted even to drink say that their doctor advised them to take some, as St. Paul said, for the stomach's sake, or for some other medical purpose. That was unfair to the doctors. There was one thing on which he would be inclined to blame some of his medical brethren in connexion with the drug habit, and that was the habit of taking medicated wines among women. He wished the Home Secretary had taken power to abolish medicated wine. If a doctor wanted to prescribe wine let him prescribe good honest port, or something of that kind, without it being mixed up with drugs. There was nothing that produced more drinking among women than medicated wines. With regard to the question of keeping books of all the drugs that were sent out, he hoped that any regulation that was adopted in regard to dispensing or prescribing, or in regard to the necessary book work in connexion with drugs would be framed in consultation with the representatives of the medical profession and of the pharmaceutical profession. Otherwise they might be drawn by somebody who might produce harm without giving the results required. For an offence against this Act a fine of £200 could be imposed, and he would draw attention on this point to the question of alcoholic poisoning. There were many thousands of deaths from that cause every year. The question of penalty ought to be very carefully considered before the penalties were finally adopted.

Mr. WOOLCOCK, who said he was the only person in that House who held a pharmaceutical certificate, and had acted for some years as secretary of the Pharmaceutical Society, welcomed from his experience the principal object of the Bill. He called attention particularly to Clause 7 of the Bill, paragraph B, which prohibited "the manufacture, sale, or distribution of any such drugs, except by persons licensed or otherwise authorised under the regulations." The effect of that might be that a Government Department would be able to supersede by regulations the important provisions of the Poisons and Pharmacy Act. He suggested that the Government might give them an assurance in regard to two or three important matters when the time came. The regulations to be made in under this Bill should be in addition to, and not in substitution of, the provisions of the Pharmacy Act and the Poisons and Pharmacy Act. He asked also for a promise on the Committee stage that a pharmacist who carried on business as a chemist should have the right to dispense and retail substances provided for under this Bill. The Government ought to assure the House that anyone who was charged with an offence under the Bill should have an appeal to some court.

Inpracticable Regulations Obviated.

Captain ELLIOT said that they were very grateful to the Home Office for Clause 11, which provided that Regulations should be laid before Parliament which would have the power of considering them and of annulling them if necessary. This would help to avoid any fear that some committee of officials

would draw up impracticable regulations. It was interesting to think that this Bill was being brought in primarily for an evil spreading, he thought, more from the United States than from any other country. That country was the great temperance country at the moment. It was a strange and noteworthy thing that alcoholism was in many ways simply the expression of a nervous weakness in the patient. If they tried to stamp out alcoholism by pure prohibition measures they drove the weak man from one form of drug to another form of drug. The fact that such a Bill as this was necessary was a very striking commentary on the trend of some of our legislation. Other countries that had managed to get rid of alcoholism had found that some other vice had taken its place. It tended to show that they should think twice and thrice before interfering with the long-established habits of the human race, especially of the Western races which had been accustomed to use alcohol in moderation. The American people had gone in for prohibition and had developed the drug habit to an extent altogether unknown in this country. It might be simply a coincidence, but the death-rate from delirium tremens had gone up some 300 per cent. In many cases the nervous diathesis resulted in a trend either towards alcohol or some other drug, and if alcohol was prohibited then the other drug, which was much more fatal, was resorted to in its place. He thought all medical men in the House and in the country would like to draw the attention of the Government to the necessity for dealing with patent medicines. He begged the Home Office to confer with the Ministry of Health and to dismember the valuable Report of the Committee of that House which sat before the war on the subject of patent medicines, and to introduce legislation along the lines recommended. Various great evils had occurred from people using these drugs under conditions which no medical man or chemist would dare to prescribe. As to the Bill before the House, they hoped that it was only the beginning of international work for dealing with health problems as a whole. The microbe knew no frontier, and disease was not limited to any kind of national flag. The Bill was read a second time.

Coroners' Verdicts in Ireland.

Colonel Sir ALEXANDER SPOT asked the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been directed to the evidence given on May 27th before the coroner's jury which inquired into the death of James Dalton at Limerick on May 15th last; whether Joseph Dalton, a brother of the deceased, gave evidence that he was present at a Dail Eireann inquiry into allegations against James Dalton of having relations with the police, and produced a document which was called Dail Eireann official verdict in the case of James Dalton; whether the coroner accepted this document and handed it to the jury for their consideration; and whether it was proposed that the verdicts of illegal courts should be accepted by officials of the Government sitting in a judicial capacity and be treated as material evidence for the consideration of the jury. Mr. HENRY (Attorney General for Ireland) replied: The answer to the first part of the question is in the affirmative. It appears that a brother of the deceased man produced a document to the effect mentioned in the question, which was read. The coroner is not an official of the Government, and the document in question was at once seized by the district inspector.—Sir J. BUTCHER: Is there no control by the Government over the proceedings of coroners' courts?—Mr. HENRY: The coroner sits in a judicial capacity and is entitled to decide what documents he will receive or refuse to receive in evidence.—Captain WILKINSON HENRY: Does the Government assume any responsibility in connexion with the verdicts brought in by coroners' courts?—Mr. HENRY: That depends entirely upon the verdict.

Women, Young Persons, and Children (Employment) Bill.

Major BAIRD moved the second reading of the Women, Young Persons, and Children (Employment) Bill, the object of which, he explained, was to enact the necessary legislation to enable effect to be given to the Conventions which were agreed to at the recent International Labour Conference at Washington. Clause 2 was not part of the Convention. It asked the House to sanction the continuance of conditions which had been adopted during the war, under which women had been employed who could not have been employed under the Factory Acts. Under those Acts the day ended at 8; the two-shift system had the two-fold result of finding employment for something like 25,000 women and rather over 500 young persons, with the accompanying increase in production and of work in the dependent industries.—Lieutenant-Colonel FREMANTLE entered a protest against Clause 2 from the point of view of public health. If they were going to permit the employment of women in the factories up to 16 in the day, he thought that would be a constant trouble in trying to get back any kind of home life, which was at the bottom of healthy homes. They wanted to go against any legislation that tended further to break up

family life. It was totally unnatural for women to be employed night and day in the factories.—Major BAIRD suggested that the House might give a second reading to the Bill, and if the Government was unable to remove by its arguments the strong opposition to Clause 2 it was clear that that clause could not stand.—The Bill was read a second time.

FRIDAY, JUNE 11TH.

Veterinary Surgeons Act Amendment Bill.

The Veterinary Surgeons Act (1831) Amendment Bill was read a third time.

The Health Resorts and Watering Places Bill.

The Health Resorts and Watering Places Bill was read a third time.

MONDAY, JUNE 14TH.

Insanitary Areas.

Mr. MYERS asked the Minister of Health if he would state the number of separate areas upon which representations had been made by medical officers of health declaring such areas insanitary areas under the provisions of the Housing Towns Planning, &c., Act, 1909, which were in the hands of the Local Government Board in August, 1914, and upon which no action had then been taken by the local authorities concerned, the number of houses and the population involved in these representations, and the extent to which improvement schemes under the provisions of the Act had since been carried out; and in how many cases these insanitary areas still remained and the extent to which the houses affected were still occupied.—Dr. ADDISON replied: There were three such areas comprising 690 houses, occupied by 4387 persons. A local inquiry was held in each of these cases. In two cases the local authorities were called upon to make improvement schemes, but proceedings had to be deferred owing to the war. A scheme in regard to one of the areas has now been submitted to me, and a scheme in regard to another of them has been promised. The third case was one of a small area (comprising 47 occupied houses), for the greater part of which an improvement scheme had already been made and confirmed. The local authority were called upon to proceed to deal with the area, but action was interrupted by the war. I have asked for a report on the present position of the area.

Closing Orders.

Mr. MYERS asked the Minister of Health if he would state the number of dwelling-houses which were still occupied in respect of which closing orders, numbering 22,115, were made in 1913 and 1914 upon the representations of the medical officers of health in England and Wales; and if he would state whether, under the Increase of Rent and Mortgage Interests (Restrictions) Bill now before the House, it would be necessary for the county court judge to ensure them protection against the increased rent charges embodied in the Bill before the House.—Dr. ADDISON replied: I regret that I am unable to give the information asked for in the first part of the question. As regards the second part of the question under the proposals of the Bill the increases under paragraphs (c) (d) of Clause 2 (3) will not be chargeable if, on production of a certificate of the sanitary authority or otherwise, the court is satisfied that they should be suspended.

General Medical Council Bill.

The Direct Representatives of the General Medical Council Bill was read a second time.

TUESDAY, JUNE 15TH.

Unsuitable Artificial Limbs.

Captain LOSEBY asked the Minister of Pensions if he was aware that ex-soldiers who lost limbs during the recent war had in certain cases been supplied with unsuitable artificial limbs of an inferior quality; if he would state the policy of the Ministry in the matter; and if he would consider the advisability of issuing instructions that all artificial limbs supplied must be of the best quality procurable.—Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied: Every precaution is taken to see that only artificial limbs of the best quality are supplied. Every limb must be passed by the surgeons of the hospitals, and periodical inspection is given by officers of the Ministry. In the event of any defect being subsequently found, readmission to a limb-fitting hospital is arranged on application being made through the appropriate Local War Pensions Committee, in order that the defect may be put right or a more suitable type of limb supplied.

Distribution of Artificial Limbs.

Major COHEN asked the Minister of Pensions if he would state how many soldiers who were suffering from the amputation of a leg had been provided with their second artificial limb; and how many such soldiers were still waiting for the said limb.—Major TRYON replied: A duplicate artificial limb has been supplied in 3562 cases. The number still supplied is 20,350.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

and others possessing THE LANCET
 invited to forward to 9 o'clock on the Thursday
 Editor, not later than 9 o'clock on the Thursday
 week, such information for gratuitous publication.
 HOUGHTON, M. J., M.R.C.S., L.R.C.P. Lond., has been appointed
 Medical Referee under the Workmen's Compensation Act for
 County Court Circuit No. 45.
 WYLLIE, D. S., C.M.G., C.B.E., F.R.C.S., Inspector of Hospitals,
 Department of Public Health and Hospitals, N.B. Aberd., House
 Great Northern Central Hospital: Gordon, F., M.B. Aberd., Assistant to Dental
 Surgeon; and FRISMAN, F. O'C., L.D.S., Assistant to Dental
 Surgeon.
 Certifying Surgeons under the Factory and Workshop Acts:
 REEVES, T. C., M.R.C.S. Eng., L.R.C.P. Lond. (Bollington);
 SMYTH, A. F., M.B., B.Ch. N.U.I. (Ballyhaunis).

Vacancies.

For further information refer to the advertisement columns.

Aylesbury, Royal Buckinghamshire Hospital.—H.S. £200.
 Barnet, Wellhouse Hospital.—Res. Asst. Med. Supt. £250.
 Barrow-in-Furness County Borough.—Asst. M.O.H. and Clin.
 Tuberc. Officer. £500.
 Battersea General Hospital (Incorporated), Battersea Park, S.W.—
 Res. M.O. £200.
 Belgrave Hospital for Children, Clapham-road, S.W.—H.S. £100.
 Bermondsey Medical Mission.—Female Locum Tenens. £200.
 Birmingham General Hospital.—H.S.'s and H.P. Also Res. Amies.
 £100.
 Bolton Infirmary and Dispensary.—Female Second H.S. £250.
 Bradford Children's Hospital.—H.S. £200.
 Bradford City.—Asst. Bacteriologist. £600.
 Bradford City.—Asst. Dispensary.—Res. M.O. £200.
 Brighton, Hove and Preston Dispensary.—Jun. H.S. £130.
 Brighton, Royal Sussex County Hospital.—H.S. £175.
 Bristol General Hospital.—H.S. £250.
 Burnley, Victoria Hospital.—Asst. Dispensary Officer. 3 gs. a session.
 Burnley County Borough.—Venereal Diseases Hospital, Balaam-street.
 Bury County Borough.—Settlement Hospital, Balaam-street.
 Canning Town Women's Settlement Hospital, Balaam-street.
 Plaistow, E.—Female Hon. Asst. P. Also Female Res. M.O.
 £150.
 Cardiff, King Edward VII. Hospital.—H.S. £200.
 Cardiff, King Edward VII. Welsh National Memorial Association
 Asst. Tuberc. P.'s. £500.
 Cardiff, King Edward VII. Hospital, Gray's Inn-road.—Th.
 Asst. Tuberc. P.'s. £500.
 Cardiff, King Edward VII. Hospital, Gray's Inn-road.—Th.
 Asst. Tuberc. P.'s. £500.

is granted the rank of Captain.
Territorial Force Reserve.
Capt. G. I. Thornton to be Lieutenant-Colonel and to resign their commissions and
1st Westsex Field Ambulance
Majors H. Waite and H. Halton resign their commissions
to take the rank of Major.
Capt. W. P. Ferguson and A. L. Sharpin resign their commissions
and are granted the rank of Major.
Capt. R. C. S. Smith, R. J. Chapman, T. Allen, and L. Colbrook
resign their commissions and retain the rank of Captain.
London University Contingent, Medical Unit: Capt. W. Wright
relinquishes his commission and is granted the rank of Captain.
Territorial Force Reserve.
The General List, to be Captain.

ROYAL AIR FORCE.
Medical Branch. Capt. J. S. Prendergast, F. H. Bowen, A. L. Robinson, S. H. DeG. Pritchard are transferred to the unemployed list.
Lieut. C. H. Vernon relinquishes his commission.
Medical Branch. Capt. G. F. H. Bloom is transferred to the unemployed list.

DEATHS IN THE SERVICE.

Sarg-Gen. James Cleghorn, I.M.S. (retired), Weyssprings, Haslemere, Surrey, on June 14th, aged 71. He entered the Indian Medical Service in 1872 and served with the Bhootan Expedition (medal and two clasps). In 1891 he was appointed Inspector-General of Civil Hospitals in the Punjab and four years later became Governor-General and Sanitary Commissioner. He represented the Government of India at the Venice Plague Conference in 1897. On retirement he was appointed Honorary Surgeon to the Queen in 1893.

Lieut.-Col. John Laneswar, I.M.S. (retired), on June 9th, at his nursing home, Strathairn, aged 71. He was for many years Civil District Medical Officer of Vellore, Arcot, President of the Board of Examiners of Madras Medical College, and Civil Surgeon to the Government Staff at Coimoor. After 35 years of service he retired owing to ill health caused by devotion to duty in connection with the plague and cholera camps. For his work he twice received 10/- thanks of the Government.

NOTICE.

BROUGHT TO NOTICE.
The names of the following medical officers are to be added to the list of officers brought to notice for services rendered in the sphere of the R.A.M.C. except where otherwise detailed. All are members of the R.A.M.C. except where the reverse is stated. —
1st Lieut. C. S. Morris, C.B.E.; Capt. C. S. O'Neill
1st Lieut. J. H. D. Duke, M.B.E. — 2nd Lieut. C. H. L. Duke

[illegible]

Hingham County Council.
 Hinglonshire County Council.
 and Asst. Sch. M.O. £500.
 Hospital.—H.S. £150.
 Manchester Royal Infirmary.—H.S.
 and South Warwick-
 Leamington Spa, Warneford, Leamington, and Child Welfare
 N.P. £200.
 General Hospital.—Res. H.P. £200.
 City—Female Asst. M.O. for Maternity and Child Welfare
 £500.
 City Tuberculosis Sanatorium.—Res. Asst. M.O. £300.
 Public Dispensary.—Res. M.O. £200.
 City Mental Hospital, Numberstone.—Asst. M.O. £600.
 Stanley Hospital.—Res. P. and S. £150.
 London County Council Hospital Service.—Sixth and Seventh Asst.
 M.O.'s. £350.
 Fever Hospital, Liverpool-road, Islington, N.—Res. Mod.
 Asst. Res. M.O. £200.
 Temperance Hospital, Hampstead-road, N.W.—Res. M.O.
 £200. Also Two Jan. H.S.'s.
 Manchester, Anson's Hospital.—H.P. £150.
 Manchester Royal Infirmary, Ruby-street.—Second Res. M.O.
 £100. Also H.S.'s. £50 first six months, £100 second.

Margaret Street Hospital for Consumption, 26, Margaret-street, W.—Asst. Hon. P.
Middlebrough Education Committee.—Sch. Dent. £400.
Middleton-in-Wharfedale Sanatorium, near Ilkley.—Asst. M.O. £500.

Miller General Hospital for South-East London, Greenwich, S.E.—Res. Cas. O. £150. Also H.S. £100. Also Orthopaedic S. and Hon. P.

Ministry of Pensions Special Surgical Hospital, Shepherd's Bush, W.—Senior Part-time S.

National Dental Hospital, Great Portland-street, W.—Med. Supt. £250.
Necessaire-upon-Tyne Education Committee.—Asst. Sch. M.O. £500. Also Dental S. £400.

Necessaire-upon-Tyne, Hospital for Sick Children.—Sen. and Jun. Res. M.O.'s: £250 and £200 respectively.

Northampton General Hospital.—H.S. £200.
Nottingham City Asylum.—Second Asst. M.O. £400.
Prison Medical Service.—M.O.'s. £300.

Reading, Royal Berkshire Hospital.—H.S. £200.
Rochdale Infirmary and Dispensary.—Sen. H.S. £250.
Rotherham Hospital.—Jun. H.S. £150.

Tonol Free Hospital, Gray's In-road, W.C.—Asst. S.'s.
Royal London Ophthalmic Hospital, City-road, E.C.—Refraction Asst. £100.
Royal Veterinary College, London, N.W.—Lecturer on Chemistry. £300.

Royal Westminster Ophthalmic Hospital, King William-street, West Strand, W.C.—Refractionist Asst. £100.
Ryde, Royal Isle of Wight County Hospital.—Res. M.O. £250.
St. Helens Education Committee.—Dentist. £450.

St. Margaret's Hospital, Leighton-road, Kentish Town, N.W.—Medical Specialist in Diseases of Children. 200 guineas.
St. Mary's Hospital for Cancer, Fistula, and Other Diseases of the Rectum, City-road, E.C.—Hon. S. and Hon. Asst. S. Also H.S. £150.

Salisbury General Infirmary.—Asst. H.S. £150.
Salop County Council.—Two Asst. M.O.'s. £517 10s.
Sheffield Royal Hospital.—Asst. Cas. O. £150.

Shrewsbury Royal Infirmary.—H.P. and H.S. £150 each.
Shrewsbury Royal Infirmary.—H.P. £200.
Singapore, Straits Settlements, Health Department.—Asst. Health Officer. £7500.

South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.P. £100.
Stafford County Mental Hospital.—Locum Tenens Asst. M.O. 8s. a week.

West Africa.—Asst. M.O. £650.
West Bromwich and District Hospital.—Res. H.S. £200.
West End Hospital for Nervous Diseases, 73, Welbeck-street, W.—P. Also H.P. £200.

West London Hospital, Hammersmith, W.—H.P. £50. Also Clin. Asst. £250.

Westminster Hospital, S.W.—Hon. Asst. Admin. of Angus.
Whitehaven and West Cumberland Infirmary.—Res. H.S. £225.
Wigan Infirmary.—Hon. S., P., Asst. S., and Asst. P. Also Senior H.S. £250.

Wolverhampton and Staffordshire General Hospital.—H.S. £200.
Worcester County and City Mental Hospital, Powick.—Jun. Asst. M.O. £300.

Worcestershire County Council.—Asst. County M.O.'s and Sch. Oculist, 2s. each.
Wormley Infant Welfare Centre.—M.O. 30s. per session.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Buckhaven, Dulais Valley, and Forkhill.

Births, Marriages, and Deaths.

BIRTHS.

CLIVE MATTHEWS.—On June 14th, at St. Leonard-on-Sea, the wife of I. Clive Matthews, L.D.S., R.C.S.E., of a son.

DUNFORD.—On June 4th, at Dury St. Edmunds, the wife of Geoffrey Dawson, L.D.S., of a son.

WACHER.—On June 13th, at St. George's-place, Canterbury, the wife of H. Stewart Wachter, M.R.C.S., L.R.C.P., of a daughter.

WALKER.—On June 10th, at Spencer House, Tetbury, Gloucestershire, the wife of T. Warburton Walker, M.D., of a daughter.

MARRIAGES.

FINNY—DUNFORD SAMUEL.—On June 8th, by licence, at All Saints' Church, Kingston-upon-Thames, William Evelyn St. Lawrence Finny, M.D., J.P., Barrister-at-Law, to Emily Grace Dunford Samuel, eldest daughter of the late Isaac Dunford Samuel, and Mrs. Cooper Turner, of Marlow House, Kingston-upon-Thames.

MILLER—DUNFORD.—On June 1st, at Kilglass Parish Church, by the Rev. W. A. Scanlan, cousin of the bride, Henry C. D. Miller, M.D., late Captain, R.A.M.C. (P.C.), of Whitlinton Moor, Cheshire, to Edith Margaret Esther Dunford, late G.A. R.M.N.S. (R), second daughter of Francis Dunford, J.P., Tully House, Lenamore, Rathowen, Ireland.

DEATHS.

CLIFTON.—On June 14th, at his residence, Weymouth, Hampshire, Surrey, Surgeon-General Clifton, C.S.I., R.N.S., aged 79.

KERR, M.D.—On June 8th, at South Lodge, Dorchester, Miss William Kerr, M.D., R.A.M.C., aged 79.

LANCASTER.—On June 9th, at a nursing home in Streatham, Lieutenant-Colonel John Lancaster, I.M.S., retired.

SEWELL.—On June 11th, at Sand Dene, Mendips, Redhill, Henry Sewell, M.R.C.S., aged 77.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Thursday and Friday, June 24th and 25th.

LARYNGOLOGY (Hon. Secretaries—Irwin Moore, Charles W. Hope).

SECOND ANNUAL STUDENT CONGRESS.

Exhibition of Pathological Specimens and Drawings, Surgical Instruments, and Drugs.

Thursday.—2.30 to 5.30 P.M., Reading of Papers on Cancer of the Throat, followed by Discussions.

7.30 P.M., Dinner at the Cafe Royal.

Friday.—10 A.M. to 1 P.M., Reading of Papers and Discussions left over from the previous day.

2.30 to 4 P.M., Demonstrations.

4 P.M., Clinical Meeting.

RESEARCH DEFENCE SOCIETY, at the House of the Medical Society of London, 11, Chandos-street, Grosvenor-square, W.

Wednesday, June 23rd.—3.45 P.M., Annual General Meeting.

Address.—Col. McCarrison, I.M.S.: Vitamines in their Relation to Health. Exhibition of Specimens.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, at the Kensington Town Hall.

Friday, June 25th.—7.45 P.M., Reception. 8.15 P.M., Cavendish Lecture.—Prof. C. S. Sherrington: Posture. Followed by Annual Conversations.

TUBERCULOSIS SOCIETY, at Cardiff.

Saturday, June 26th.—Papers will be read by Dr. Brownlee, Dr. de C. Woodcock, and Dr. H. Ellis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

Tuesday, June 22nd.—5 P.M., Croonian Lectures.—Dr. A. F. Hurst: The Psychology of the Special Senses and their Hysterical Disorders. (Lecture IV.)

LONDON HOSPITAL MEDICAL COLLEGE (SURGICAL UNIT), in the Units Lecture Theatre, London Hospital, I.

Special Course of Lectures open to both Students and Post-Graduates.

Three Lectures on The Acute Abdomen.—

Wednesday, June 23rd, and Friday.—4 P.M., Mr. R. Howard. (Lectures I. and II.)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

Monday, June 21st.—2 P.M., Dr. Melville: X Ray Department. Tuesday.—2 P.M., Sir J. Dundas Grant: Throat Department.

2.30 P.M., Demonstration.—Dr. Burrell: Vital Capacity.

Wednesday.—10.30 A.M., Dr. Punch: Demonstration of Museum Specimens. 2 P.M., Dr. Gosch: Cardiographic Department.

2.30 P.M., Demonstration.—Dr. Punch: Tuberculin, and other Tests for Tuberculosis.

Thursday.—10.30 A.M., Dr. Burrell: Artificial Pneumothorax. 2.30 P.M., Demonstration.—Dr. Fenton: Conduct of Tuberculosis Dispensary.

Friday.—2 P.M., Dr. Melville: X Ray Department. 2.30 P.M., Demonstration.—Dr. Burrell: Conduct of Tuberculosis Dispensary.

Saturday.—1 P.M., Dr. Batty Shaw: Special Demonstration in the Out-patient Department.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

Monday, June 21st.—2.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Dr. Kinnier Wilson: Paralysis Agitans.

Tuesday, June 22nd.—2.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Dr. Hilsen Russell: Disseminated Sclerosis.

Wednesday, June 23rd.—2 P.M., Dr. Grainger Stewart: Epilepsy. 3.15 P.M., Demonstration of Frankel's Exercises. I.

Thursday, June 24th.—2.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.15 P.M., Dr. Saunders: Myelitis.

Friday, June 25th.—2.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.15 P.M., Demonstration of Frankel's Exercises. II.

Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westminster-street, W.

Monday, June 21st.—5.30 P.M., Post-Graduate Lecture.—Dr. Price: Auricular Fibrillation.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).

A Course of Post-Graduate Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.

Friday, June 25th.—9.15 P.M., Prof. A. Whitfield: Treatment of Syphilis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Monday, June 21st.—2.30 P.M., Mr. J. L. Banister: Gynaecological and Operative. 2.15 P.M., Selected Cases.—Dr. H. M. Leslie.

and Operations. 3.15 P.M., Clinical Lecture.—Mr. Denham: Chronic Infections of Mucous Surfaces. 4.30 P.M., Lecture.—Lieut. Col. W. B. Oliver: The Dehydrated Man from the Tropics.

Wednesday.—2.30 P.M., Dr. W. J. Fleming: Dermatological.

Thursday.—2.30 P.M., Mr. N. Fleming: Ophthalmological. Dr. J. Metcalfe: Radiology.

ST. MARYLEBONE, GLoucester-road, N. W. **Practical Points**
 Caveat-square, N. W. **Practical Points**
 Post-Graduate Course on Infant and Child Welfare.
 Tuesday, June 22nd.—10.30 A.M., Dr. E. Pritchard: **Practical**
 Lectures on the Management and Feeding of Infants
 and Young Children.—Lecture VII., The Uses of Dried
 Milk and Patent Foods.
 Thursday.—3 P.M., Lecture VIII., The Management of Difficult
 Cases. Caveat-square, Westminster, S.W. **Practical Points**

THURSDAY.—3 P.M., Dr. Vincent: Practical Points.
Case 4.
INFANTS HOSPITAL, Vincent-square, Westminster, S.W.
TUESDAY, June 22nd.—5 P.M., Dr. R. Vincent: Practical Points
on Infant Feeding.

UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University
Advanced Lectures in the subject. Chemistry of Sterols will be

Advanced Lectures in Physiology and Biochemistry, and others interested in the subject.
A Course of Eight Lectures on the Bio-Chemistry of Sterols will be given in the Physiological Laboratory of the University.
South Kensington, S.W. Lecture VI., Mr. J. A. Gardner.

given in the Physiological Laboratory,
 South Kensington, S.W.
 Tuesday, June 22nd.—5 p.m., Lecture VI., Mr. J. A. Gardner.
UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE
POST-GRADUATE LECTURES, at the Sheffield Royal Infirmary.
 Wednesday, June 23rd.—4 p.m., Prof. Connell: Lesions of Foot
 and Toes Fracture.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, June 22nd.—4.30 P.M., Lecture:—Dr. E. M. Brockbank:
Ankylosis and their Diagnosis.

MANCHESTER FRENCH HOSPITAL POST-GRADUATE LECTURES, 21, Abchurch-lane (behind Whitworth Park).
 Thursday, June 21st - 4.30 P.M., Dr. A. C. Maglan: Chronic
 Tube-Ovarian Inflammation and its Relation to Venereal
 Disease. Operative Treatment.

Communications, Letters, &c., to the Editor have been received from—

been received from—

A.—Dr. C. J. H. Atken, Lond.; Sir C. Allbutt, Cambridge; Dr. E. D. Adrian, Cambridge.
B.—Mr. C. Balfour, Lond., Prof. F. Barclay-Smith, Lond.; Prof. A. P. Boycott, Lond.; Baby-Saving League of British Guiana, Georgetown; Prof. W. R. Bell, Liverpool; Brighton School Medical Officer; Dr. G. Blacker, Lond.; Dr. C. Browne, South Mumps, Mrs. C. Bruce, Lond.; Dr. H. B. Brackenbury, Lond., Messrs. Blackburn and Co. India, Galcutta, British Medical Association, Cambridge, Financial Sec. of.
C.—Sir James Canlie, Lond.; Mr. G. Chubb, Lond.; Dr. E. H. Chamberlath, Lond.; Dr. S. L. Chucky, Bombay, Prof. E. L. Collis, Cardiff, Dr. C. Childell, Folkestone; Sir J. Crichton-Brown, Lond.
D.—Mr. A. Duran, Lond.; Dr. I. S. Dunkson, Lond.; Dr. S. Davies, Lond.; Dr. J. Donald, Leicester, Mr. F. G. Davies, Worcester, Dr. J. H. Davies, Leicester, Capt. T. C. Dobie, Lond.
E.—Dr. J. W. Edington, Sea-Land; Dr. H. A. Ellis, Lond.
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Y.—Dr. R. A. Young, Lond.

THE HYGIENE OF THE FEET AND PHYSICAL EFFICIENCY.

By FREDK. JOHNSON, M.B. LOND., F.R.C.S. ENG.

Now that renewed attention is being bestowed on all matters that affect the physical fitness of the youth of the nation, it may not be amiss to call attention to the relation that subsists between sound feet and health. Modern civilisation requires the encasing of the foot in a leather covering. The foot has thus been rendered a delicate member, to a degree only to be appreciated after a study of the human foot among a primitive people who live and grow up unshod, or at the most use a light sandal.

Contrasts.

Contrasts.

Let us take, then, for comparison two types of the human foot: (1) the foot of a desert-dwelling Arab; (2) the foot of an artisan of one of our large towns. A study even of the skeletal parts will reveal differences in the degree of development of individual bones, but it is in the living foot that the contrast is most marked. It has been my lot to spend nearly 20 years amongst the Arabs of Eastern Palestine and Mesopotamia. It has also fallen to my lot to see something of our recruits under training during the early years of the war.

It would be interesting to know the statistical returns of recruits who came under treatment for defects of the feet—such as hammer-toes, overlapping toes, flat-foot, ingrowing toe-nail, various forms of tender feet—and to estimate the loss of time which the cure of these defects entailed.¹ I may remark in passing that the Army and Navy pattern of boot seemed, in my judgment, all that could be desired. If, in addition, the statistics were to include those suffering from various degrees of trench foot, the measure of the evil will be still more apparent. It cannot be doubted that the tenderness of the foot of civilised man and its enfeebled vaso-motor mechanism, unable to adapt itself to low temperatures, predisposes that member to the various pathological conditions comprised in the term trench foot. A logical conditions comprised in the term trench foot. A department of the Ministry of Health might with advantage pursue this inquiry and gather these statistics from the R.A.M.C. war records.

R.A.M.C. war records.

In considering the causes that have operated in producing the feeble, pallid, and delicate appearance of the foot of the average civilised man, it should be noted that whilst a mechanical cause—compression—accounts for a good deal, the exclusion of light and air have not been without influence. In the case of the bare-footed Arab type it is easy to understand the effect of the actual contact of the sole of the foot with the earth—the friction on the skin, the pressure upon the numerous small joints of the foot of the body weight, with distribution unimpeded by compressing footwear, and, lastly, the complete freedom of the circulation, both cutaneous and deep, the wholesome influence of light and air, and the unimpeded activity of the numerous sweat glands. I would emphasise the observation that, marked as is the difference in outward configuration of the two types of foot, the difference in physiological, especially circulatory, efficiency is still more marked. I have seen the bare-footed Arab in cold mountainous parts and have wondered at his comparative insusceptibility to cold feet.

The High Heel and the Pointed Toe.

The High Heel and the Pointed Toe.
When the boot is ill-fitting or ill-shaped the effects of compression are inevitably exaggerated. These effects are more commonly seen in the case of women, for reasons easily explained by reference to the lines of the modern woman's shoe. It should not be forgotten that the penalty of delicate feet is not confined to those long-suffering members alone, but secondary effects of an untoward kind follow inevitably. I allude to the unwillingness to take sufficient exercise and the impairment of general health as the result.

What puzzling thoughts must come to a professor of anthropology as he surveys the boots and shoes exposed for sale in a modern boot shop, especially the footwear of women and children. How is it that he sees the shoe of the young child with a perfect anatomical shape, a low heel, and

Dr. Vere G. Webb points out that Miss Millicent Vere Webb, the fully superintendent of the Dufferin Victoria Hospital, is also senior surgeon to the institution, and was that to the Kaiser's Hind medal principally for her

There are, of course, no statistics available for a corresponding number of women. If there were, the result would be still more eloquent, because the incidence of irregularities of the vocal cords is greater in women than men.

plenty of toe-space; and then as he turns to the footwear of elder girls and women he finds such a steady alteration in shape and style. Apart from simple growth there has been no change in the anatomy of the foot. Not until our imaginary professor turns to the region of female psychology does he get any explanation of the phenomenon. He will further discover that having reached an explanation he is still far from insinuating an acceptable remedy to an aberration so pernicious in its results. The remedy of the evil, however, is not in his department, and for this he may be thankful.

Many of our ideas of physical culture and aesthetics owe their origin to the ancient Greeks; what these ancient pioneers of grace and beauty would say to much of modern footwear and its accompaniment—fatty pat—I must leave to the imagination. The prevalence of faulty gait is not sufficiently recognised in this busy age; however, it is widespread, and in its minor manifestations at least owes its origin to the foot and its coverings.

Another adverse influence to the well-being of the foot is worthy of mention in passing—the hard unyielding surface of our roads and pavements—an evil much increased since the rise of motor traffic. In making the above comparison between the foot of modern civilised man and the foot of the present-day Arab or ancient Greek, I am not unmindful of the important item of climate as a factor in the selection of suitable footwear. No doubt my residence in the East and my contact with Orientals have coloured my remarks. I have tried to emphasise the divergence between the two types of foot—that of the Arab and that of civilised man—and this divergence is barely appreciated by those who have not lived amongst a primitive people.

Some Suggestions.

I now pass to one or two suggestions which aim at raising the physiological tone of the feet. Firstly, I would remark that, in a matter of this kind, counsels of perfection are of little use, and conventional ideas must, to some extent, be respected. The most that can be advised is a corrective designed to counteract the effects of unfavourable causes. Something, too, can be effected on educational lines.

The first recommendation is the adoption in schools and camps—holiday camps for boys and girls, and military establishments—of a special bare-foot drill, as an integral part of the usual physical culture training. I know that the curriculum, both in our schools and in military camps, is already a full one. But if the evil of "delicate feet" is as great as I have indicated, it will be no waste of time if an hour, three days a week, winter and summer, be devoted to this special form of physical culture. The children of our elementary schools would not, I believe, require much persuading to follow the suggestion; objections, if they arise, would more likely come from the teachers. As to the ground on which the drill should take place, I would suggest two types likely to be serviceable: (1) an ordinary grass field; (2) a ground with a surface of fine cinder-ash, well rolled, and firmly set. This latter would cause friction and thereby promote the circulation of the skin of the sole. I would further suggest that medical inspectors of schools should include amongst their duties the inspection of the feet and footwear of children, and that the official forms supplied by the county educational committees should provide for this. The wearing of sandals without stockings should be encouraged, especially in young people, during the summer months.

Lastly, educational propaganda should be instituted. Colleges of physical culture are increasing both for men and women. Consider for the moment those for women, for perhaps it is amongst women that education on the subject is more needed. Young women leave these colleges after three years' study, well grounded in the essentials of anatomy and allied subjects which form the foundation of physical culture. These qualified teachers should be looked to as a means of educating the uninitiated in schools, and demonstrating to their pupils the mechanics of the normal human foot, with its arches and multiple small joints, and the part the arches and joints play in the functions of bearing the body-weight and of locomotion. The mechanical effect of the high heel, combined with the pointed, stiff and unyielding toe-cap, under the influence of the body-weight, should also be demonstrated. Surely, with a little enlightenment of this kind, the penalties of wearing the "fashionable shoe" would not be so lightly incurred as in the days of ignorance. The demonstrator should not omit to point out the effects upon a walker upward down hills of high heels and pointed toes. Something would be gained if the height of the heel could be reduced even to an inch.

Physical culture is recognised as a subject of national importance; upon the feet rests the whole superstructure of man's erect form. Might not some of the time now devoted to the culture of the superstructure be spared with advantage to the well-being of the lowly, hidden feet?

PUBLIC HEALTH IN NIGERIA, 1918.

A REPORT on the Blue-book for the year 1918, drawn up by the Acting Governor, Mr. A. G. Boyle, C.M.G., has just been presented to the Imperial Parliament. A considerable increase in the number of reported Europeans is noted. In the Northern Province it was estimated that there were 989 Europeans at the end of 1918, of whom about 495 were officials. In the Colony and Southern Provinces there were 2000 Europeans, about 1250 being officials. The native population of the Northern Provinces is estimated at 8,537,369 and of the Southern Provinces and Colony at 7,856,000, a total of about 16 millions. The average density in the Northern Provinces would therefore be about 35 to the square mile, and in the Southern Provinces and Colony about 98.

Influenza.

On the whole, the general health of the community in the Southern Provinces in 1918 compared unfavourably with previous years. The great pandemic of influenza reached Nigeria towards the end of September, raged during October, and declined rather abruptly in November. Imported into Lagos by sea from the Gold Coast, in spite of sanitising efforts on the part of the sanitary authorities, it was but a matter of time till the disease had spread all over the country. Calabar was the last to suffer owing to the infrequency of the shipping service between there and ports to windward, and the epidemic was at its height there when it had practically died out in Lagos. The epidemic did not present any features different from those observed in other parts of the world, unless it was in its severity. Gastro-intestinal types were noted, but in the great majority of the cases the brunt of the disease fell on the respiratory system. All the deaths amongst the Europeans were due to septic broncho-pneumonia. It is difficult to estimate the incidence of the disease, or the mortality, except in Lagos, where there is a properly organised health department, and where registration is compulsory. In that centre a case-incidence of 50 per cent., with a mortality of 5 per cent., would probably be a low estimate. Amongst the poor, and intensely ignorant both the incidence and mortality must have been very much higher. It is estimated, from the Register of Deaths and a comparison of the death-rate during the epidemic with the same periods in previous years, that 15 per cent. of the population of Lagos died of influenza.

Other Diseases.

Amongst the native population the most prevalent diseases, excluding influenza, were affections of the digestive and respiratory systems, infective diseases, and rheumatic and skin affections. Anaemia, especially for a great deal of ill-health and invaliding. Goitre amongst both Europeans and natives is fairly common. There were only 9506 cases of malaria in 1918, as compared with 11,804 in 1917. Two cases of yellow fever occurred, one European and one native; both were fatal. One case of typhoid fever was reported from the Northern Provinces, whilst the Lagos case was an old one which had been under treatment in England. There were 29 cases of blackwater fever in Europeans, with 4 deaths; the native had this disease and recovered. 233 cases of dysentery, and the mortality from time to time epidemic, were recorded, with 10 deaths—a high rate of mortality for this disease. There were 439 cases of small-pox, with 74 deaths, or a case-mortality of 16.8 per 1000. Nothing approaching a serious outbreak of the disease occurred. The incidence of small-pox is principally confined to the dry season. Dysentery for the most part of the amebic variety. Amongst Europeans the case-incidence was practically the same as in the previous year; 40 cases were recorded, but this gives a low estimate of the number who are carriers of the ameba. Emetine and Aleresta ipocac. have given good results in the treatment. Amongst natives 920 cases were recorded with a mortality of 16.3 per cent., as against 1059 with a mortality of 11.2 per cent. in 1917.

A DEMONSTRATION OF ARTIFICIAL LIGHT LIMBS.

WE drew attention in an annotation published in our issue of June 12th to the interesting medical sections of the Exhibits (Army, Naval, and Air Forces) now on view at the Imperial War Museum at the Crystal Palace. Amongst other things claiming special notice is the exhibit of light legs in the Army Medical and Red Cross Section of the Museum, shown under the auspices of that worthy institution, "The Disabled Society." The object of this society is to ensure that the best type of artificial limb should be brought within the reach of all ranks. It is pointed out that it was early evident that the heavy wooden limbs needing harness over the chest and shoulders made the task of the wounded man a heavy one, and it is now established that with a light metal limb simply attached with a pelvic band a man may regain practically all his previous activity, and not only earn his living in most occupations, but enjoy games and sport without undue fatigue. Lieutenant General Edward Bethune expresses the hope that, pending the adoption by the authorities of a standard light limb, such appliances will be encouraged and find a place on the market. Meantime the society announces that any information in their possession is freely at the service of anyone requiring such information, and the evidence of actual wearers of these limbs is available. The activities of the Disabled Society are recorded from time to time in a publication known as "The Ex-Service Man." The temporary address of the society is 123, Church-street, Chelsea, S.W.3. The organisation should arouse wide sympathy and substantial support.

WOMEN'S HOLIDAY FUND.

THE object of this fund, which began its work in 1895, is to help the London working woman to have a week or a fortnight's holiday by the sea or in the country. In spite of higher wages there are many who have to spend their weekly money on the bare necessities of life, and have no margin left for holidays. Help is needed specially for the woman dependent on her own exertions for her livelihood, and for the mothers of large families.

All applicants pay as much as they can towards their expenses, but the society has to meet about two-thirds of the total cost. Donations should be sent to the Secretary of the Women's Holiday Fund, 76, Denison House, 296, Vauxhall Bridge-road, S.W. 1.

EASTERN AND WESTERN MEDICINE.

AT the last meeting of the Madras Legislative Council heated discussion centred round a resolution which recommended the appointment of a committee for the investigation and encouragement of Ayurvedic and Unani systems of medicine now in vogue in the Presidency. In moving the resolution an Indian councillor said that the depreciation of the Ayurvedic system of medicine was quite unwarranted. The Ayurvedic system was just as scientific as the Western system of medicine. The medical aid provided by Government to taxpayers was totally inadequate. The speaker declared that, in his opinion, in cases of snake-bite and rabies the Western treatment failed, while the Eastern, to his knowledge, succeeded.

THE CHARACTERISTICS OF THE ULSTERMAN.

Sir John Byers has written an interesting and topical pamphlet with this title. The study of character and temperament is no less important to the doctor than it is to the statesman who at the present juncture may find help in the solution of difficult problems by a perusal of Sir John Byers's anecdotal study. As the author points out, in no part of the British empire have there been so many different races in various periods as in Ulster, while the province differs from the rest of Ireland in its physical aspects. Efficient and parsimonious in the use of words, unless he is sore of their effect, the Ulsterman, even in sickness, does not care to waste his breath. An instance is given of a hospital patient who never spoke for a fortnight save by panting and nodding. When roused, however, the Ulsterman can speak with passion, quickness, and alertness, and is stern, dogged, and unyielding. His suspicion of compliments is indicated by the saying, "He's a dale too sweet to be wholesome." Industry, enterprise, and perseverance, with much "judition"—i.e., sound judgment—are also characteristics, in accordance with Sir John Byers's summary.

THE WELFARE OF THE PROFESSION AND THE COUNTRY.

To the Editor of THE LANCET.

SIR.—The recent resolution of the Insurance Commissioners to pay mileage from the doctor's residence rather than from the nearest doctor seems detrimental to both, since it may lead to an immense usage of transport material—motors, carriages, coachmen, chauffeurs, &c. All doctors are qualified and presumably equally able. The idea that an individual of the public may have that one doctor, however distant he may be, alone understands his case, is, except in very special instances, illusory; in fact, pure imagination. As to the immense amount, perhaps, to be used in extra transport, will it not be wasted? Would not the country be richer were such an amount saved? Can the country afford waste at the present time? The doctor during the long hours of the passive inactivity of transport in all weather cannot expect to have a healthy time of it. I guess it will mean shortening of his life, and his advice—
"I would rather have it from a healthy employed man."
Cumulative wisdom might perhaps travel on the lines of common sense to the people to the nearest doctor, like in rural districts the people often go to the nearest place of worship, and treating them otherwise as having luxuries—taxable luxuries of motor and car. The doctors then might be fully employed, busy men living in country parts then now, and mostly able to get through their work on their feet healthily.

I am, Sir, yours faithfully,

W. P. D.

"THE ROTTEN MEDICAL PROFESSION."

UNDER the above title we have received from a serious correspondent this letter for publication:—

"The country is quite filled with persons holding medical degrees, and even qualified doctors were never more difficult to find. Only about 10 per cent. of the degree holders are trained up to the point of being able to perform any useful work in the medical line."

"The high and fourth rate medical education is given for the sake of the degree in order to be able to get the medical material and able to their patients. These doctors, being, as they are, not trained up to the point of being able to perform any useful work in the medical line, are a waste of money and a waste of the public's money. The medical profession is a waste of money and a waste of the public's money."

Stringent "State" regulations should ensure that every medical student obtain the opportunity of an efficient training up to being able to perform operations, no favoured students being allowed in the hospitals after the other students have been dismissed.

A single "State" qualification ought to replace the many useless diplomas at present in vogue, and the holder's possession of it should be unassailable and absolute. By virtue of being qualified alone, every medical person should automatically become a member of the staff of the hospital serving the district in which he or she is a permanent resident.

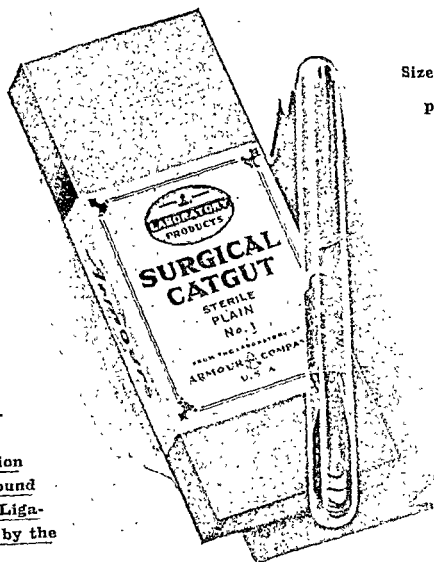
No medical panel should be allowed to be sold, and a triennial dissolution of all panels should be enforced to give new beginners a chance. The system enabling rings of doctors to keep the appointments amongst them ought to be abolished, one medical man one medical appointment only.

The writer, we feel sure, believes every word of what he has written, having taken what he would term his facts from gossip. He does not know the need for doctors, but repeats the old story of a glut. He does not know of the standardising work of the General Medical Council in education. He seems not to know that there are difficulties in the institution of a one-portal system which could only be removed by legislation. We recommend our correspondent to read the Interim Report of the Consultative Council on Medical and Allied Sciences, and to see what is there projected for giving the general practitioner opportunities for the best scientific work.

BOOKS, ETC., RECEIVED.

- ALLAN, PHILIP, AND CO., London.
A Concise Chronicle of Events of the Great War. By Captain R. P. P. Rowe. Pp. 344. 10s. 6d.
- Toasts, Rakes, and Clits. By Sir Richard Steele, Joseph Addison, and others. (The Pilgrim's Books.) Pp. 256. 5s.
- BELL, G. AND SONS, London.
Intermediate Text-book of Chemistry. By A. Smith (Columbia University). Pp. 520. 8s. 6d.
- BUTTERWORTH AND CO., London, India, Australia, and Canada.
Syphilis in General Practice, with Special Reference to the Tropics. By K. K. Chatterji, F.R.C.S.I. With Introduction by W. D. Sutherland, I.M.S. Pp. 382. Rs. 15.
- GREEN, W., AND SONS, Edinburgh.
Rheumatism and Arthritis. By Prof. R. Stockman, M.D. Pp. 132. 15s.
- GRIFFIN, CHARLES, AND CO., London.
Introduction to Midwifery. By A. Donald, M.D. 8th ed., revised. Pp. 192. 6s.
- HEINEMANN, WILLIAM, London.
The Mental Hygiene of Childhood. By W. A. White. Pp. 194. 6s.
- "LA MEDICINE," 21, Boulevard St. Germain, Paris.
Condensed Milk. By Dr. P. Lassablière. Pp. 84.
- LIBRAIRIE FELIX ALCAN, Paris.
Traumatismes Cranio-Cérébraux. Par Prof. H. Duret. Pp. 1502. Fr. 75.
- LIVINGSTONE, E. AND S., Edinburgh.
Handbook of Diseases of the Nose, Throat, and Ear for Students and Practitioners. By W. S. Syme, M.D. Pp. 329. 9s.
- LONGMANS, GREEN, AND CO., London.
Anatomy, Descriptive and Applied. By Henry Gray, F.R.S. 21st ed. Edited by Prof. R. Howden, M.B., D.Sc. Notes on Applied Anatomy, revised by Dr. A. J. Jex-Blake and J. Clay. F.R.C.S. Pp. 1365. 42s.
- MASSON ET CIE, Paris.
L'Infection Bacillaire et la Tuberculose chez l'Homme et chez les Animaux. Par A. Calmette, Sous-Directeur de l'Institut Pasteur de Paris. Pp. 620. Fr. 55.
- METHUEN AND CO., London.
The Mammary Apparatus of the Mammalia in the Light of Ontogenesis and Phylogenesis. By Prof. E. Bresslau, M.D. With Note by Prof. J. P. Hill, D.Sc. Pp. 145. 7s. 6d.
- MILFORD, HUMPHREY, London.
Dodi Ne-Nechdi (Uncle and Nephew). The work of Berachya Hanakdan. Now edited from MSS. at Munich and Oxford, with an English translation, introduction, &c., to which is added the first English translation from the Latin of Adelard of Bath's Questions Naturales. By Prof. Hermann Gollancz, M.A., D. Litt. Pp. 161. Hebrew text 60. 21s.
- PEARSON, C. A., London.
Diary of a Police Surgeon. By Graham Grant, Lieutenant-Colonel, R.A.M.C.T. Pp. 183. 3s. 6d.
- ROTTLEDGE, GEORGE, AND SONS, London.
The Social Diseases: Tuberculosis, Syphilis, Alcoholism, Sterility. By Dr. J. Héricourt. Translated, and with a final Chapter, entitled The Social Maladies in England, by Bernard Miall. Pp. 216. 7s. 6d.
- SCIENTIFIC PRESS, London.
The Conquest of Venereal Diseases. By Charles Russ, M.B. Pp. 16. 1s.
- THACKER, SPINK, AND CO., Calcutta and London.
Clinical Methods for Students in Tropical Medicine. By Lieut. Col. G. T. Birdwood, I.M.S., and others. 3rd ed. Pp. 373. Rs. 7.5.
- THIEME, GEORG, Leipzig.
Disekte der Magen-und Darmkrankheiten. Von Prof. Dr. I. Pons. Pp. 216.
- UNIVERSITY OF LONDON PRESS, London.
Animal Experiments and Surgery. By W. G. Spencer, M.S. Pp. 179. 6s.
- VEGELI, F. C., Leipzig.
Lehrbuch der Chirurgie. Von Prof. Dr. Carl Garré und Prof. Dr. A. Borchard. Pp. 655. M. 35.
- WRIGHT, J., AND SONS, Bristol. (STIMPSON, MARSHALL, London.)
The Medical Annual, 1920. Pp. 493. 15s.

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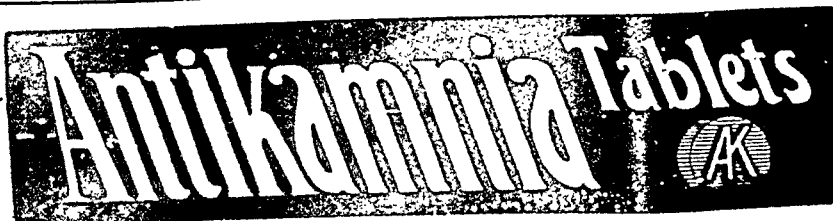
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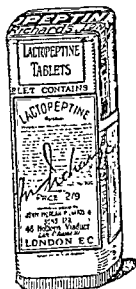
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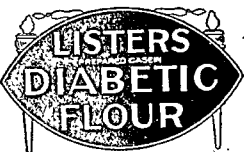


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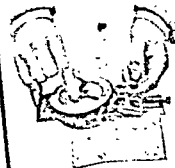
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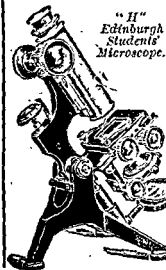
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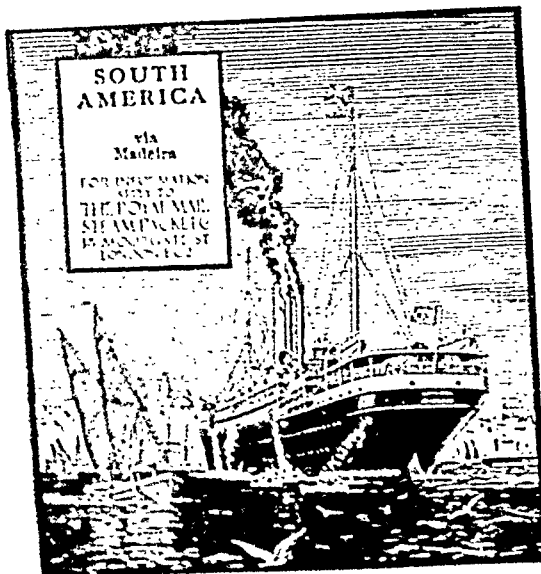


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ROYAL SOCIETY OF MEDICINE

NOMINATIONS OF OFFICERS AND COUNCIL OF THE SOCIETY FOR 1920-1921.

The Annual Election of Officers and Council for the ensuing year will be held at the Annual General Meeting of Fellows at the Society's House on Wednesday, July 7th, at 5 P.M.
The Council has nominated the following:—

- As President: Sir JOHN BLAND-SUTTON, F.R.C.S.
As Honorary Treasurers: WILLIAM PASTEUR, O.B., O.M.G., M.D.;
O. H. PAGGE, M.S.
As Honorary Librarians: RAYMOND CRAWFORD, M.D.; WALTER G. SPENCE, M.S.
As Honorary Secretaries: A. M. H. GRAY, C.B.E., M.D.; W. GIRLING BALL, F.R.C.S.
Other Members of Council: Lady BARRETT, O.B.E., M.D.; J. CHARLTON BRISCON, M.D.; J. F. GORDON DILL, M.D.; JOHN FAWCETT, M.D.; J. HERBERT FISHER, F.R.C.S.; ROBERT HUTCHISON, M.D.; HERBERT S. PRINGLEBURY, F.R.C.S.; Sir D'ARCY POWER, K.B.E., F.R.C.S.; GUY H. M. WOOD, M.D.

Every Fellow has the right to nominate any other Fellow either for office, or as a Member of the Council, and all such nominations must be received by the Secretary not later than the 21st June. Before nominating a Fellow his written consent must be obtained, and the nomination must be supported by the signature of three Fellows.
If any private nominations are received a revised List of Nominations will be issued on or before the 24th June.

OPERATIVE SURGERY.

London School of Clinical Medicine, THE SEAMEN'S HOSPITAL, GREENWICH.

A Course of Operative Surgery specially adapted to the needs of General Practitioners will be held from June 21st to July 28th, meeting on Mondays, Tuesdays, and Wednesdays at 2.30 P.M.
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Application to be made to the Dean at the Seamen's Hospital, Greenwich, from whom further particulars can be obtained.

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FINAL F.R.C.S. COURSE.

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Time-table and particulars may be obtained from the Secretary.

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The Summer Session of the School opened on Monday, the 3rd of May, 1920.

The following Session will commence on Monday, October 4th.

For prospectus and further particulars apply to the Secretary, London School of Tropical Medicine, Endsleigh Gardens, N.W., or to the Head Office, Seamen's Hospital, Greenwich, London, S.E.

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Syllabus, with further particulars may be obtained from

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Liverpool School of Tropical Medicine.

The next Course of Instruction will be conducted in the new laboratories of the School, and will commence on Monday, 13th September, 1920. The date of the D.T.M. Examination is 14th December, 1920. For further particulars apply to the Secretary, School of Tropical Medicine, University of Liverpool.

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EARLY TREATMENT OF MENTAL DISORDERS.

MILLFIELD, YORK.

(FOR GENTLEMEN.)

Established by a Committee of the Society of Friends for the Treatment of NERVOUS MALADIES and BORDERLAND CASES on a voluntary basis.

Millfield stands in about eight acres of grounds at the south-east boundary of the city, and has been purchased and equipped specially for the purpose. No certifiable persons can be received.

Applications for admission may be made to the Matron, Millfield, Hall-road, York; or to the Secretary, A. FRED BURGESS, 107, Heslington-road, York.

THROXENBY HALL, near SCARBOROUGH.

(FOR LADIES.)

Under the management of the same Committee. For the Treatment of NERVOUS DISORDERS under similar conditions to Millfield, York. Throxenby Hall is about two miles from Scarborough, and is delightfully situated near the Raincliffe Woods.

Applications to the Matron at Throxenby Hall, Scarborough (Tel. 252), or to A. FRED BURGESS, as above

ST. GEORGE'S RETREAT, BURGESS HILL, SUSSEX.

An old-established Licensed House, under the management of the Augustinian Sisters, for the treatment of Ladies mentally afflicted. Grounds nearly 300 acres. Carriage drives and motoring. Marine Brighton Residence for change. Voluntary Boarders taken. Resident and Visiting Medical Officers. London 14 hours.

For terms, &c., apply to the Superiores.

Telephone: Post Office 90.

Telegrams: "Wivelsfield Green."

CAMBERWELL HOUSE, 33, PECKHAM ROAD, S.E.

Telegrams: "PSYCHOLIA, LONDON."

Telephone: New Cross 1057.

For the Treatment of Mental Disorders.

Completely detached Villas for Mild Cases. Voluntary Boarders received. 20 acres of grounds. Cricket, tennis, croquet, squash racquets, bowls, and all in-door amusements. An Illustrated Prospectus, giving full Particulars and Terms, may be obtained on application to the Secretary Senior Physician: FRANK H. EDWARDS, M.D., M.R.C.P.

HOVE VILLA, BRIGHTON—A Convalescent Branch of the Above.**HAYDOCK LODGE Newton-le-Willows, LANCASHIRE**

A PRIVATE MENTAL HOSPITAL FOR THE CARE AND TREATMENT OF MENTAL AND NERVOUS CASES OF BOTH SEXES
EITHER VOLUNTARY OR UNDER CERTIFICATES, preference being given to Recoverable Cases.

Terms from £2 2s. per week upwards.

Private Apartments on special terms.

Situated mid-way between Manchester and Liverpool. Two miles from Newton-le-Willows Station on the L. & N.W. Ry., and close to Ashton-in-Makerfield Station on the G.O. Ry. in direct communication with Manchester.
CONSULTING PHYSICIAN (Dr. Street), 47, Rodney Street, Liverpool, from 2 to 4 p.m., or by appointment. Telephone: 3458 Royal Liverpool. Manchester (Dr. Mould), Winter's Buildings, St. Ann Street, on Tuesdays and Thursdays, from 11 to 1.20 p.m., or by appointment.
VISITING AND CONSULTING PHYSICIANS.—Sir JAMES BAKER, LL.D., M.D., F.R.C.P., 72, Rodney Street, Liverpool; G. K. MOULD, Physician for Mental Diseases to the Sharnfield Royal Hospital, The Grange, Rotherham.
For further particulars and forms of admission apply Resident Medical Proprietor, Haydock Lodge, Newton-le-Willows, Lancs.
Telephone: 11 Ashton-in-Makerfield.
Telegraphic Address: "STREET, Ashton-in-Makerfield."

BRISLINGTON HOUSE, near BRISTOL.

Telegrams: FOX, BRISLINGTON.

ESTABLISHED 1804.

Telephone: No. 2 BRISLINGTON.

A PRIVATE MENTAL HOSPITAL for the Care and Treatment of Persons of the UPPER and MIDDLE CLASSES OF BOTH SEXES.

The House is situated on an estate of 200 acres, and has extensive Pleasure Grounds and a Farm connected with it. It lies between Bristol and Bath, three miles from Bristol Station and within two-and-a-half hours' journey from London.

In addition to the main building there are several villas completely detached and pleasantly situated in their own grounds, where there is accommodation for suitable cases.

For terms and further particulars apply to the MEDICAL SUPERINTENDENT.

**NORTHWOODS HOUSE
WINTERBOURNE, near BRISTOL.**

FOR PRIVATE TREATMENT OF MENTAL DISEASES.

Situated in a large park in a healthy and picturesque locality, easily accessible by rail via Bristol, Winterbourne, Patchway, or Yale Stations. Uncertified Boarders received. For further information see Medical Directory, page 2059. Terms moderate.

Apply to Dr. J. D. Thomas, Resident Physician and Licentiate, for full particulars.

NEW SAUGHTON HALL

THE ONLY PRIVATE HOSPITAL for the TREATMENT of MENTAL CASES in SCOTLAND
POLTON, MIDLOTHIAN.

NEW SAUGHTON HALL, which takes the place of 'Saughton Hall, established in 1798, is situated seven miles south of Edinburgh, in the beautiful neighbourhood of Hawthornden and Rosslyn, and is surrounded by picturesque and well-timbered pleasure grounds extending to 125 acres. There is also a SEASIDE HOUSE at GULLANE, EAST LOTHIAN.

Railway Stations—Polton, five minutes; and Loanhead, ten minutes' walk from the Institution—reached in half-an-hour from the Waverley Station, Edinburgh. Telephone—4 Loanhead.

Forms of admission for voluntary or certified cases, full instructions, &c., can be obtained on application to the Resident Medical Superintendent, J. BATTY TUKE, M.D., F.R.C.P. Edin. Inclusive terms from £158 to £500 per annum, according to requirements.

THE ROYAL EARLSWOOD INSTITUTION FOR MENTAL DEFECTIVES.
(Formerly the EARLSWOOD ASYLUM.)

R. C. P. HULL, Esq., J.P., Treasurer

REDHILL, SURREY.

FOR THOSE REQUIRING CONTROL with EXPERT SUPERVISION; SELECTED CASES admitted on reduced inclusive fees. THOSE UNABLE TO PAY admitted by votes of Subscribers, with partial remission towards cost.

SCHOOLS, FARMING, and various TRADE WORKSHOPS. PAYMENT towards cost.

RECREATIONS: ALL outdoor games. EXCELLENT BAND by Male Staff, for Concerts, Dancing, &c.

Apply: THE MEDICAL SUPERINTENDENT, Earlswood, Redhill, Surrey, or to the Secretary, Mr. HARRY HOWARD, 14-15, Leinster Hall, B.C. 4. Telephone: City 5297.

Telephone: Redhill 344.

NORTHUMBERLAND HOUSE,**GREEN LANES, FINSBURY PARK, N.**

Telephone: No. 533, North.

(Established 1814.)

Telegrams: "SUMMILANT, LONDON."
A PRIVATE HOME for the Treatment of Ladies and Gentlemen suffering from Nervous and Mental Affections. Four miles from Charing Cross; easy access from all parts.
Six acres of ground, highly situated, facing Finsbury Park.
Voluntary Boarders received without certificate. Seaside Branch at Worthing.
For particulars, apply to the RESIDENT PHYSICIAN.

PECKHAM HOUSE

(Established 1826)

112, PECKHAM ROAD, LONDON, S.E.

Telegrams "Alleviated, London."
An Institution licensed for the CARE and TREATMENT of the MENTALLY AFFLICTED of Both Sexes. Private houses with electric light for suitable cases adjoining the Institution. Holiday parties sent to the Seaside branch at Worthing during the Summer months. Moderate terms.—Apply to Medical Superintendent for further particulars.

PENDYFFRYN HALL SANATORIUM

(NORDRACH-IN-WALES.)

FOR THE OPEN-AIR AND INOCULATION TREATMENT OF ALL FORMS OF TUBERCULOSIS.
One of the first Sanatoria opened in the United Kingdom to carry out the treatment as practised at Nordrach. Carefully graduated walks rise through pine, gerse, and heather to a height of over 1000 feet above sea level, commanding extensive views of both sea and mountains. Sheltered from E. and N.E. winds. Climate mild and bracing. Small rainfall. Large average of sunshine. There are over five miles of walks in the private grounds. Rooms heated by hot-water radiators and lit by electric light.
Telegrams: Pendyffryn; and Telephone: 20 Penmaenmawr, N. Wales.
Sister and full Nursing Staff. Trained Nurses on duty all night.
For particulars apply to Dr. J. M. GERRATY, Medical Superintendent, Pendyffryn Hall, Penmaenmawr, N. Wales.

MENDIP HILLS SANATORIUM, FOR THE OPEN-AIR TREATMENT

Old-established, beautifully situated. 200 acres of Sanatorium grounds. Pinewoods and sheltered avenues. Altitude 850 feet. Porous subsoil. Separate chalets, with verandahs, hot-water radiators, and electric light. Special features—breathing an graduated exercises, and continuous inhalation. Individual attention. Resident Physician—C. MURPHY, M.D., M.R.O.S., L.R.O.P.
For particulars, apply SECRETARY HILLGROVE, Wells, Somerset. (Telephone: 16 Hickmansworth.)

DALRYMPLE HOUSE, RICKMANSWORTH HERTS.

For the treatment of Gentlemen under the Act and privately. Established 1833 by an association of prominent medical men and others for the study of Inebriety; profits, if any, are expended on the Institution. Large secluded grounds on the banks of the river Colne. All kinds of out-door and in-door recreations and pursuits.—For particulars, apply to F. S. D. HOGG, M.R.C.S., &c., Resident Medical Superintendent.

DROITWICH BRINE BATHS WARNING.

The Public are warned that the full benefits of the treatment for Rheumatism and kindred complaints CAN ONLY BE OBTAINED IN THE NATURAL BRINE BATHS AT DROITWICH, FOR WHICH THERE IS NO SUBSTITUTE. LOVBLV HOLIDAY DISTRICT. GOOD HOTELS, &c. Illustrated Booklet Post-free from Baths Manager, J. H. HOLTER, 46, Spa Enquiry Office, Droitwich (Worce.). SPECIAL FACILITIES TO MEDICAL MEN.

The best of attention and advice and the greatest benefit to be obtained from Spa Waters and Baths is available under ideal conditions at

CELEBRATED BRITISH SPAS

BATH has been in active service for 2,000 years. The hot springs still yield 500,000 gallons daily of health restoring waters rich in Radium emanation, possessing remarkable therapeutic effects.
BUXTON, situated in the centre of Derbyshire's lovely "Peak District," claims the highest altitude of any town in the Kingdom. Mineral waters rich in radio activity. Luxurious modern bathing establishments.
CHELTENHAM has no rival in respect of sylvan beauty, amenity. Spa waters comprise Magnesia, Alkaline, Sulphate, Saline, and Chalybeate Springs.

DROITWICH Brine Baths, renowned throughout the world. The countryside is delightful—orchards, deep lanes, wooded heights, gabled cottages, and bright gardens.
HARROGATE possesses not only the finest variety of natural mineral waters in the world, but also those attractive features which make it a pleasure resort as well as a health-giving Spa.

LLANDRINDOD WELLS. The principal Spa of lovely Wales. Thirty mineral springs. Complete installation of modern apparatus affording the best forms of Continental Spa treatment.

WOODHALL SPA, situated in the prettiest part of Lincolnshire, surrounded by pine woods, and heather-clad moors. Famous for Bromo-Iodine natural mineral waters. Famous for Bromo-Iodine natural mineral waters.

Responsible members of the Medical Profession to compare themselves with the superiority of these British Spas, as compared with Foreign watering places. Descriptive booklets free on request addressed HON. SECRETARY, SPA FEDERATION, Room 12, HARROGATE.

HEALTH RESORT for TUBERCULOSIS OPEN ALL THE YEAR.

In 1919: 19,508 Visitors, with 953,223 Days of Residence.

DAVOS

CANTON OF THE GRISONS, SWITZERLAND.
5200 feet above sea-level.

Best results in the treatment of acute and chronic catarrhal and infiltrative Affections of the Lungs, chronic bronchial catarrh, pleurisy with residual exudate, asthma nervosum, scrofula, chlorosis, neurasthenia, malaria, Graves' Disease, convalescence.

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Further information, Guide, &c., gratis and post free from the DAVOS PUBLIC INTERESTS ASSOCIATION DAVOS-PLATZ, THOS. COOK & SON, or THE OFFICIAL AGENCY OF THE SWISS FEDERAL RAILWAYS, 11th, Regent Street, London, S.W.1.

FREEMASONS HOSPITAL AND NURSING HOME

For Paying Patients of Strictly Limited Means

237, FULHAM ROAD, CHELSEA, S.W. 3.

Nearest Station—South Kensington (five minutes).

Telephone—KENSINGTON 6627.

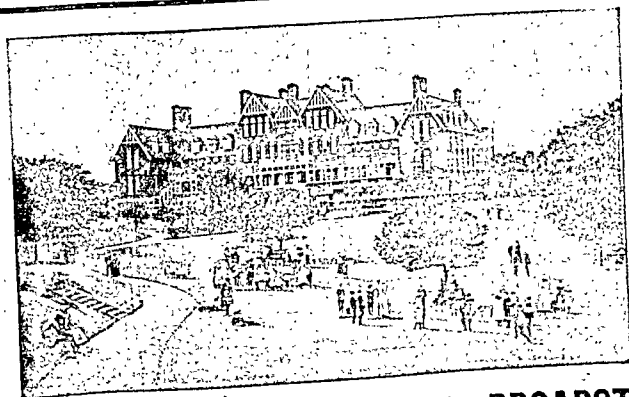


The Hospital is ready to receive adult patients of both sexes, or children not below twelve years of age, the Home being specially designed for those unable to afford ordinary nursing home charges. It has its own X-Ray and Electrical Departments.

The patients are restricted to members of the Craft and their families, but any medical practitioner may follow his own case in the institution.

Where specifically desired a patient may be operated upon by any surgeon, being a F.R.C.S.

All information will be afforded by the Honorary Secretaries. Medical practitioners are cordially invited to inspect the premises.



YARROW CONVALESCENT HOME, BROADSTAIRS.
EXCLUSIVELY FOR CHILDREN OF WELL-EDUCATED PEOPLE OF
VERY LIMITED MEANS.

100 Beds. Boys, ages 4 to 12. Girls, ages 4 to 14.

Charge, a minimum of 15s. per week for each Child.

The usual stay is 4 weeks, but some wards are reserved for serious cases requiring special treatment, and for these a lengthened stay may, under some circumstances, be granted, and the age limit raised to 14 for Boys and 16 for Girls. The Home faces the sea, and is open all the year, being as well adapted for winter as for summer residence.

There is a well-equipped operating theatre and a complete X-ray installation.
Particulars can be obtained from the SECRETARY, 6, HOLBORN VIADUCT, LONDON, E.C.1.

THE GRANVILLE HOTEL

RAMSGATE.

On the East Cliff,

Overlooking the Sea.

Suite of Baths equipped with the most Modern Installation and Appliances for Scientific Medical Treatment—comprising Turkish Bath, Russian Vapour Bath, Radiant Light and Heat, High-Frequency and Sinusoidal Current, also Professor Bergonié's Apparatus for the Treatment of Rheumatoid Arthritis, Muscular Affections, Spinal Curvature, Colitis, Neurasthenia, &c.

Tariff and Full Particulars of Treatment on application to the Manager.

SPECIAL WEEK-END TERMS. GARAGE.

Telephone: Ramsgate 12.

THE FINEST HOTEL ON THE COAST. Telegrams: "Granville Hotel."

For COMFORT and HEALTH Visit
THE CATERHAM SANITARIUM
"Battle Creek System."

Telephone: 53. Medical Superintendent:
Telegrams: "HYDRO, CATERHAM." Dr. F. O. SHORZ.

SMEDLEY'S HYDRO.

MATLOOK. Established 1853.

Physicians: O. C. R. Harbison, M.B., B.Ch.
R. MacLelland, M.D., O.M. (Edin.)

Prospectus and full information on application to Managing Director.

Grove House, All Stretton, Church
STRETTON, SHROPSHIRE.

A PRIVATE HOME for the Care and Treatment of a limited number of Ladies Mentally Afflicted.
Climate healthy and bracing.

Apply to Dr. McClintock, Proprietor and Resident Medical Superintendent.

BAY VIEW MOUNT, PAIGSTON, S. DEVON.

A Private Nursing Home for Convallescents and CHRONICS, Ladies and Gentlemen. Every home comfort, highest references.—For terms apply Lady Superintendent.

Princess Christian College Nurseries,
27, WILBERHAM ROAD, FALLOWFIELD, MANCHESTER.

Children received from a month old to four years. Every care and comfort. Highest medical references. South aspect. Large garden. References required. Apply to the Principal.

A Resident Patient can be received

In Medical Man's charming country house, within fifteen miles of Town. Specially suited for nerve, drug, alcoholic, or other cases.—For further details and terms, apply E. care of Mr. Percival Turner, 4, Adam Street, Strand, W.C.2.

The Committee of the Newport Mental

HOSPITAL, Caerleon, are prepared to receive a limited number of PAYING PATIENTS into the Hospital at moderate charges.
For terms, please apply to the Medical Superintendent.

Resident Patient.—A Doctor's Widow,

an experienced nurse, having a large house and grounds in the Country a few miles from London, can receive Patients. Specially successful with Sprue cases.—For further details and terms apply, B. Mr. Percival Turner, 4, Adam Street, Strand, W.C.2.

Resident Patients.—Descriptive List

(Illustrated) of Medical Men in all parts willing to receive Resident Patients sent without charge. Or selection will be made on statement of nature of case on terms to the General Manager, Scholastic, Clerical & Medical Aids, Ltd., 22, Craven Street, Trafalgar Square, W.C.2.

IN BEAUTIFUL COUNTRY, 15 MILES FROM LONDON.

Littleton Hall, Brentwood, Essex

(100 feet above sea level). A HOME for a few LADIES only Afflicted, large grounds. Liverpool Street half an hour. Free travel, car mileage. Excellent one mile. Voluntary. Resident, Various.—For terms, A. apply Dr. Haynes. Telegrams and Telephone: Haynes, Brentwood &c.

Home for Chronics and Maternity
CASES. From £5 5s. per week upwards. Nurses supplied at short notice to any part. Tel.: Otley 67.—Apply, Matron, Wharfedale Nursing and Nurses' Home, Leeds-road, Otley, Yorks.

Westminster Hospital, S.W. 1.—The
Committee are about to appoint an HONORARY ASSISTANT ADMINISTRATOR OF ANÆSTHETICS. Candidates, who must be fully qualified and registered Medical Practitioners, are invited to send their applications by June 25th to the undersigned.

By order of the House Committee.
10th June, 1920. (SIDNEY M. QUENNELL, Secretary.)

Central London Throat and Ear
HOSPITAL, Gray's Inn-road.—A vacancy occurs for THIRD ASSISTANT SURGEON. Applications should be forwarded not later than June 30th to RICHARD KERSHAW, Secretary.
It is expected that applications will be received from present Surgical Registrars to the Hospital.

Margaret Street Hospital for Con-
SUMPTION (for Out-patients), 25, Margaret-street, W.1.—The Council of Management invite applications for the appointment of ASSISTANT HONORARY PHYSICIAN on the Staff of the above Hospital. Applications, with copies of testimonials, should be sent by June 3rd to the Secretary at the Hospital.

South London Hospital for Women,
Southside, Clapham Common, S.W.4.—The Board of Management invite applications from fully qualified Medical Women for the post of HOUSE PHYSICIAN. Appointment for a period of six months. Salary at the rate of £100 per annum, with board, residence, and laundry.

Applications, with copies of testimonials, to reach the Secretary at the Hospital, not later than first post on July 1st.

London Temperance Hospital,
Hampstead-road, N.W.1.—Applications are invited for the following post, which will be vacant on the 32nd July, 1920:—

RESIDENT MEDICAL OFFICER.
Honorarium £200 per annum, with board, residence, &c. Appointment for six months (renewable). Candidates must be fully qualified and registered. Applications, with copies of three recent testimonials, to be addressed to the Secretary.

City of London Maternity Hospital,

City-road, E.C.1.—A RESIDENT MEDICAL OFFICER (Male) is required on the 1st July, 1920. The appointment is for six months (renewable), at a salary at the rate of £100 per annum, with board, lodging, and washing.

Candidates must be fully qualified and registered. Applications, accompanied by eight copies of three testimonials, must be sent to the undersigned, from whom further information can be obtained.

RALPH B. CANNINGS, Secretary.

West London Hospital, Hammer-

smith, W.6 (160 beds).—HOUSE PHYSICIAN wanted for six months from July 1st, 1920. £50 per annum. Board, lodging, and washing allowance provided. Candidates are required to be registered under the Medical Act, to forward applications, with copies only of testimonials so as to reach me by Monday, 21st June, at 4.30 P.M., and prior to that date to call upon and send copies of application and testimonials to the members thereof, to obtain from canvassing, but nevertheless to send copies of application and testimonials to the members of the House Committee, at whose meeting on Thursday, 24th June, at 3.30 P.M., candidates must be in attendance.

H. A. MADGE, Secretary.

West London Hospital, Hammer-

smith, W.6 (160 beds).—CLINICAL ASSISTANTS are required in the Venereal Diseases Department (open from 5.30 P.M.) for six months from July 1st next. Candidates are required to be registered under the Medical Act, to send in their applications, with copies only of testimonials, so as to reach me by Wednesday, 23rd June, and to be in attendance at a meeting of the Committee, who will appoint on Thursday, 24th June, at 4.30 P.M.

H. A. MADGE, Secretary.

Elizabeth Garrett Anderson Hospital.
Buxton-road.—Wanted, a fully qualified Medical Woman for the post of SENIOR ASSISTANT MEDICAL OFFICER to the Venereal Disease Department. Salary £200 a year. Applications, with testimonials, to be sent to the Secretary immediately.
INGOEN H. MURPHY, Secretary.

Registrar required for General Lying-in Hospital, York-road, Lambeth, S.E.1. Applications, with copies of three testimonials, to be forwarded to the Secretary.

Vacant, the post of Lecturer on CHEMISTRY in the ROYAL VETERINARY COLLEGE, London, N.W.1. Salary £300 per annum. Applications, accompanied by not more than four testimonials, should be addressed to the Secretary, and received by him not later than 30th June.

Royal Free Hospital, Gray's Inn-road, W.C.1.—Applications are invited for the appointments of ASSISTANT SURGEONS (Three) to the Hospital. Candidates must be Fellows of the College of Surgeons, England. Applications, accompanied by copies of recent testimonials, should be sent to the Secretary on or before 10th July, 1920. REGINALD R. GARRATT, Secretary.

Miller General Hospital for South-EAST LONDON, Greenwich-road, S.E.—ORTHOPEDIC SURGEON required to In-patients and Out-patients. Applicants must be Fellows of the Royal College of Surgeons of England and not engaged in general practice. The appointment will be for three years, at the expiration of which term the holder will be eligible for re-election. Applications, stating age, qualifications, with copies of not more than three recent testimonials, to be sent to the undersigned on or before July 3rd, 1920. (Signed) J. H. ROBINSON, Chairman.

Miller General Hospital for South-EAST LONDON, Greenwich-road, S.E.—Applications are invited for the post of HONORARY PHYSICIAN to In-patients and Out-patients. Applicants shall be Members or Fellows of the Royal College of Physicians of London, Dublin, or Edinburgh. The appointment will be for three years, at the expiration of which term the holder will be eligible for re-election. Applications, stating age, qualifications, with copies of not more than three recent testimonials, to be sent to the undersigned on or before July 3rd, 1920. (Signed) J. H. ROBINSON, Chairman.

The Miller General Hospital for SOUTH-EAST LONDON, Greenwich, S.E.10.—The Board of Management invite applications for the following posts:—
RESIDENT CASUALTY OFFICER. Salary £150 per annum, board, lodging, and laundry. Applicants must previously have held the post of House Physician or House Surgeon at General Hospital. Particulars as to duties can be obtained on application.
HOUSE SURGEON. The appointment will be for six months, with a salary at the rate of £100 per annum, board, lodging, and laundry. Apply, with copies of not more than three testimonials, to the Secretary.

Royal Westminster Ophthalmic Hospital, King William-street, West Strand, W.C.2.—REFRACTIONIST ASSISTANTS.—Three Refraction Assistants required, to attend twice weekly from 1 P.M. to 5 P.M. The appointments are open to qualified Medical Practitioners who have had experience in Refraction Work. They will be tenable for six months.

Salaries at the rate of £100 per annum.
Candidates are requested to send in applications, with copies of testimonials, not later than Monday, the 28th June next, to the undersigned, from whom further particulars can be obtained.
JOHN HY. JONSSON, Secretary.

London Fever Hospital, Liverpool-road, Islington, N.1.—RESIDENT MEDICAL SUPERINTENDENT is required in the first week of July. Candidates are invited for this post to be sent in to the Secretary on or before Tuesday, June 22nd. Candidates must be duly qualified and have held responsible Hospital appointment involving Administrative and Technical experience and knowledge of Bacteriology.
Salary commencing £400, rising to £500 a year, with house, quarters, and board.

ASSISTANT RESIDENT MEDICAL OFFICER.
Applications are also invited for this post, to be sent in to the Secretary on or before Tuesday, June 22nd.
Candidates must be duly qualified and have previously held resident house appointment.
Salary £200 a year, with house, quarters, and board.

**Medical Specialist in Diseases of CHILDREN.—A PHYSICIAN for Diseases of Children is required by the Metropolitan Asylums Board at their ST. MARGARET'S HOSPITAL for cases of Ophthalmia Neonatorum, Leighton Road, K. N. 11th Town, N.W. The appointment will be renewable annually, and the officer appointed will visit the hospital at least twice a week, and more often if his assistance is required.
The honorarium (which is subject to statutory deduction under the Public Law Officers Superannuation Act, 1893) attached to the post is at the rate of £200 guinea per annum.
Applications to be made in writing and to be forwarded to the Clerk to the Metropolitan Asylums Board, Embankment, E.C.4, not later than 10 A.M. on Saturday, June 26th, 1920.
June 6th, 1920.**

London County Council.—Applications are invited for positions as Sixth and Seventh ASSISTANT MEDICAL OFFICERS in the London County Mental Hospital Service. Candidates must be single men, not more than thirty-five years of age, and must be registered to practise both in Medicine and Surgery in England. Candidates appointed will be pensionable under the Asylums Officers' Superannuation Act, 1909. Preference will be given to those persons who have served, or offered to serve, with H.M. Forces. Salary £300 a year, rising by annual increments of £25 to £400 a year, without emoluments; also, at present, temporary additions amounting to from £223 to £273 a year. Charges made for board, lodging, &c. (at present 2 guineas weekly). Full particulars and conditions of employment on form of application (on which alone application can be made) obtainable from the Asylums Officer, London County Council, 13, Arundel-street, Strand, W.C.2.
JAMES BIRD, Clerk of the London County Council.

The Hospital for Sick Children, Great Ormond-street, London, W.C.1.—A CASUALTY MEDICAL OFFICER is required on the 8th July, 1920.
Candidates must be registered Medical Practitioners, and are invited to send in their applications, addressed to the Secretary, before 12 o'clock, on Monday, 5th July, 1920, accompanied by copies of not more than three testimonials given specially for the purpose.

The appointment is made for one year, but may be held, subject to re-election, for a period of three years.
The appointment is non-resident.
Salary £200 per annum, with luncheon.
All candidates must appear before the Joint Committees at their meeting on Wednesday, 7th July, 1920, at 5 P.M. precisely.
Forms of application and copies of the rules may be obtained from the Secretary, at the Hospital.
By order of the Committee of Management.
JAMES MCKAY, Acting Secretary.

The Hospital for Sick Children, Great Ormond-street, London, W.C.1.—A MEDICAL REGISTRAR AND PATHOLOGIST is required on the 8th July.

Candidates are invited to send in their applications addressed to the Secretary, with not more than three testimonials written specially for the purpose, at or before 12 o'clock, Monday, 5th July, 1920.

The appointment is made for one year, but may be held, subject to re-election, for a period of three years.
Salary £200 per annum, and allowance for substitute for holiday £12 12s.
Candidates must be registered Medical Practitioners, and must have held a responsible Hospital appointment and be prepared to take up their duties on 8th July, 1920.

All candidates must appear before the Joint Committees at their meeting on Wednesday, 7th July, 1920, at 5 P.M.
Forms of application, copy of the rules for, and details of the duties of, the appointment will be supplied on application to the Secretary.
By order of the Committee of Management.
JAMES MCKAY, Acting Secretary.

June, 1920.

County Borough of Croydon.—ASSISTANT MEDICAL OFFICER OF HEALTH AND ASSISTANT SCHOOL MEDICAL OFFICER.—Notice is hereby given that the Council are prepared to receive applications from duly qualified Medical Practitioners, between the ages of twenty-five and thirty-five years, for the appointment of Second Assistant Medical Officer of Health and Assistant School Medical Officer.

Applicants must be medical men holding a special qualification in State Medicine or in Public Health, and preference will be given to applicants who—

- (1) Have had some definite experience of school medical work;
- (2) Have enjoyed special opportunities for the study of diseases in children;
- (3) Have had experience in infectious diseases;
- (4) Have held one or more resident hospital appointments.

If a person appointed will be required to devote the whole of his time to the duties of the office.
The salary will be £500 per annum, rising by annual increments of £25 to a maximum of £600, and will be subject to a percentage deduction in accordance with the provisions of the Superannuation Scheme adopted by the Council under the Croydon Corporation Act, 1893.

Applications must be sent to the Medical Officer of Health, Town Hall, Croydon, with copies (not originals) of not more than three testimonials, dated, not later than 11 o'clock in the forenoon of Thursday, the 1st day of July, 1920, endorsed "Assistant Medical Officer."

Canvassing will be a disqualification.
Dated this 8th day of June, 1920.
The Town Hall, Croydon.

County Borough of Croydon. PUBLIC HEALTH DEPARTMENT. ASSISTANT MEDICAL OFFICER OF HEALTH—MATERNITY AND CHILD WELFARE WORK.

Applications from properly qualified Medical Women are invited for the position of Assistant Medical Officer of Health for the purposes of Maternity and Child Welfare. The lady appointed will be entrusted mainly with duties under the Medical Officer of Health in connexion with the department of public health work.

Salary £500 per annum, with four annual increments of £25 to a maximum of £600.

Applications, upon forms to be obtained from the Public Health Department, Town Hall, Croydon, to be sent (accompanied by copies of not more than three testimonials of recent date) to the Medical Officer of Health, Town Hall, Croydon, not later than 11 o'clock in the forenoon of Thursday, the 1st day of July, 1920.

Canvassing will be a disqualification.
JOHN M. NEWHAM, Town Clerk.
Town Hall, Croydon, 8th June, 1920.

Resident Medical Officer for general
work in Main Hospital, &c. Doubly qualified. Commencing £200, all found. Bachelor's quarters. Reply in first place, enclosing copies of three recent testimonials, to Secretary, A.V. HOSPITAL, BATTERSEA GENERAL HOSPITAL. (Incorporated), Battersea Park, S.W.11.

St. Mark's Hospital for Cancer,
FISTULA, and OTHER DISEASES of the RECTUM, City-road, E.C.—In accordance with the laws of the Hospital the Committee of Management will proceed to appoint an HONORARY ASSISTANT SURGEON, who must be a Fellow of the Royal College of Surgeons, England. Applications, accompanied by copies of testimonials, should reach the Secretary at the Hospital on or before Saturday, 10th of July. By order of the Board.
H. W. G. COOPER, Secretary.

St. Mark's Hospital for Cancer,
FISTULA, and OTHER DISEASES of the RECTUM, City-road, E.C.—HOUSE SURGEON wanted. Must be doubly qualified. Salary £150 per annum; board, lodging, and washing. Applications, with copies of three recent testimonials, to be forwarded to the Secretary at the Hospital on or before Saturday, 10th of July. By order of the Board.
H. W. G. COOPER, Secretary.

St. Mark's Hospital for Cancer,
FISTULA, and OTHER DISEASES of the RECTUM, City-road, E.C.—HOUSE SURGEON wanted. Must be doubly qualified. Salary £150 per annum; board, lodging, and washing. Applications, with copies of three recent testimonials, to be forwarded to the Secretary at the Hospital on or before Saturday, 10th of July.

Parish of Chelsea.—Second Assistant
MEDICAL OFFICER (Male) required for CHELSEA INFIRMARY, S.W.

Salary £325 a year (no war bonus), with rations, apartments, and laundry. Subject to deductions for Superannuation. Forms of application will be supplied by the Clerk to the Guardians, 250, King's-road, S.W. 3, on receipt of a stamped foolscap envelope. 15th June, 1920.

Italian Hospital.—Applications are
invited for the post of HOUSE SURGEON, now vacant. Candidates must be doubly qualified and registered. The appointment will be for six months, renewable at the pleasure of the Committee of Management. Salary £150 per annum, with board and residence. Applications, with copies (only) of testimonials, should be sent forthwith to the Secretary and Controller, Italian Hospital, Queen-square, W.C.1.

Royal London Ophthalmic Hospital
(Moorefields Eye Hospital), City-road, E.C.1.—REFRACTION ASSISTANT.—Applications are invited for the office of Refraction Assistant on Wednesday and Saturday morning. Candidates must be registered Medical Practitioners. Salary at the rate of £100 per year for two mornings' work a week. Hours of attendance from 9 A.M. until 1 P.M. The Refraction Assistant will be appointed for a period of one year and will be eligible for reappointment. Applications, stating age and qualifications, must be received not later than 2nd July, 1920, by ROBERT J. BLAND, Secretary-Superintendent.

Hospital for Consumption and
DISEASES of the CHEST, Brompton, S.W.—The Committee of Management invite applications for the post of ASSISTANT RESIDENT MEDICAL OFFICER. Candidates, who will be required also to undertake the duties of a House Physician, must be registered Practitioners, and must have held a resident Hospital appointment for six months. Salary £150 per annum, with board and residence. Applications, with testimonials, to be sent in on or before June 25th, 1920.
Brompton, June, 1920. FREDERICK WOOD, Secretary.

Hospital for Consumption and
DISEASES of the CHEST, Brompton.—The Committee of Management invite applications for the post of HOUSE PHYSICIAN (for which there are four vacancies). The duties include work in the Out-patient Department as well as in the Wards. Further particulars may be obtained from the undersigned, to whom applications, with testimonials, should be addressed not later than Wednesday, July 21st. Candidates are required to attend the Medical Committee on Wednesday, July 21st, at 4.30 o'clock. Testimonials as to moral character, as well as to medical qualifications, are required. The appointment is for six months, with an honorarium of 50 guineas. Applicants are received from qualified women.
June, 1920. FREDERICK WOOD, Secretary.

Ministry of Pensions.—Special
SURGICAL HOSPITAL, Shepherd's Bush, W.12.—SENIOR PART-TIME SURGEON.—Applications for this post are invited from gentlemen with special knowledge of Orthopaedics, and who possess the Fellowship of the Royal College of Surgeons. The appointment will entail attendance at the Hospital on three days in each week, the usual duration of each attendance being about four hours. Applicants should communicate with the Secretary, M.S.I.H., Ministry of Pensions, 14, Great South-street, S.W.1.

Canning Town Women's Settlement
HOSPITAL, Balaam-street, Plaistow, E. 13.—Applications are invited from qualified Medical Women, who must be Graduates in Medicine, for the post of HONORARY ASSISTANT PHYSICIAN to the above Hospital. Applications, with testimonials, to be sent not later than July 8th to the Hon. Sec., Miss Wood, at the above address.

Canning Town Women's Settlement
HOSPITAL, Balaam-street, Plaistow, E. 13.—Wanted, for the beginning of September, a qualified Woman as RESIDENT MEDICAL OFFICER for Hospital and Out-patients. Salary £150 per annum. Applications, with testimonials and previous experience, to be sent not later than July 8th to the Hon. Sec., Miss Wood, at the above address.

West End Hospital for Nervous
DISEASES, 73, Welbeck-street, W.1.—Applications are invited for the post of PHYSICIAN for Gynaecological Cases. Candidates must be Fellows or Members of the Royal College of Physicians of London and Graduates in Medicine of one of the Universities of the U.K. Applications, with copies of recent testimonials, should be sent to the undersigned before 10th July. D. D. KIRKALDY WILLIS, Secretary.

West End Hospital for Nervous
DISEASES, 73, Welbeck-street, W.1.—HOUSE PHYSICIAN, British, Male, wanted for the In-patient Department, Gloucester Gate, Regent's Park. Doubly qualified. Salary to commence £200 per annum, with board, residence, and washing. Applications, with copies of testimonials, to be sent before June 25th to the Secretary at 73, Welbeck-street, W.1.

Locum Tenens.—Wanted, on
July 29th, for four weeks, to take charge at the HERMONDSEY MEDICAL MISSION, a fully qualified Medical Woman. Board and residence, with salary at rate of £200 per annum. Applications, with two testimonials, to be sent at once to Miss S. F. Fox, M.D., 44, Grange-road, Bermondsey, London, S.E. 1.

DENTAL DEPARTMENT OF UNIVERSITY COLLEGE HOSPITAL
National Dental Hospital, Great
Portland-street, W.1.—Vacancy for MEDICAL SUPERINTENDENT. Hours 9 to 1. Week days. Salary £250. Applicants must hold a registrable Medical qualification as well as the L.D.S. Applications, with testimonials, to be sent on or before July 14th, to M. P. COLLINGS, Clerk to the Dental Department.

Great Northern Central Hospital,
Holloway, London, N.—Applications are invited for the post of CASUALTY OFFICER. The appointment is for six months from 15th July. Salary at the rate of £200 per annum, with board, residence, and laundry. Applications, accompanied by copies of testimonials, should be sent by the 23rd inst. to the undersigned, from whom forms of application and particulars of the post can be obtained. 15th June, 1920. GILBERT G. PANTER, Secretary.

Belgrave Hospital for Children
(Incorporated), Clapham-road, S.W.9.—The Committee of Management invite applications for the post of HOUSE SURGEON, which will become vacant on July 31st. Applicants must be fully qualified and registered. The appointment is for six months, with board, residence, and washing provided. Salary at the rate of £150 per annum. Applications, with copies of testimonials, to be forwarded to the undersigned, from whom further particulars may be obtained. By order.
THOMAS CLAPHAM, Secretary.

Prison Medical Service.—A few
vacancies exist for MEDICAL OFFICERS, Class II. Salary £200, rising by £15 per annum to £500, with quarters, or an allowance in lieu. The pay is subject to a bonus which at present, on a salary of £200, is £223 17s. 6d. These posts are pensionable and there are prospects of promotion to higher rank. Candidates must be fully qualified and registered and have had some Asylum experience. Aged twenty-five to thirty-five, but preference will be given to those under thirty. Forms of application can be obtained from the Secretary, Prison Commission, Home Office, London, S.W.1.

Nottingham City Asylum.—Second
ASSISTANT MEDICAL OFFICER wanted, Male, unmarried. Salary £200 per annum, with board, apartments, and laundry, subject to the provisions of the Asylums Officers' Superannuation Act. Previous experience in Lunacy work not essential. Apply, stating age and qualifications, and enclosing copies of recent testimonials, to Medical Superintendent.

Warneford, Leamington, and South
WARWICKSHIRE GENERAL HOSPITAL, Leamington, Staffs.—Wanted at once, RESIDENT HOUSE PHYSICIAN. Fully qualified and registered. Salary per annum £200, with board, residence, and laundry. Applications, accompanied by not more than three recent testimonials, should be sent immediately to the undersigned. 14th June, 1920. C. R. W. ORFEE, House Governor and Secretary.

Ancoats Hospital, Manchester.

HOUSE PHYSICIAN required on or about 1st August next. Salary £150 per annum. Six months' appointment.
TWO JUNIOR HOUSE SURGEONS required on or about 1st August next. Salary £100 per annum. Six months' appointment.
 Candidates must be doubly qualified and registered. Applications, stating age and full particulars, to be forwarded to the undersigned on or before Monday, 15th July.

By order of the Board.

HERBERT J. DAFORSE, Secretary.

Manchester Royal Infirmary.

The Medical Board are prepared to receive applications for the appointment of **HOUSE SURGEONS**.

Candidates must possess a legal qualification and be registered. The successful candidates will be provided with board, residence, and allowance for washing during their term of office and receive a salary of £50 for the first six months of residence and £100 for the second six months.

Candidates must forward certificates of having been taught the administration of Anæsthetics.

Applications must be sent in, addressed to the Chairman of the Medical Board, at once.

Manchester Royal Infirmary, CENTRAL BRANCH, Roby-street.**SECOND RESIDENT MEDICAL OFFICER. £100.**

The Board of Management of the Manchester Royal Infirmary invite applications. The appointment is for six months.

Remuneration at the rate of £100 per annum, with board and residence.

Candidates must state age and send twelve copies of their application and testimonials to the undersigned at once.

By order.

FRANK G. HAZELL, General Superintendent & Secretary.
 14th June, 1920.

Manchester Royal Infirmary.

Applications are invited for the appointment of—

HOUSE SURGEON TO THE SPECIAL DEPARTMENT.

Candidates must be duly qualified. The successful candidate will be provided with board, residence, and allowance for washing during his term of office, and receive a salary of £20 for the first six months of residence, and £100 for the second six months.

Applications must be sent in, addressed to the Chairman of the Medical Board, at once.

By order.

FRANK G. HAZELL, General Superintendent & Secretary.
 Royal Infirmary, Manchester, 14th June, 1920.

County Borough of Barrow-in-Furness.

ASSISTANT MEDICAL OFFICER OF HEALTH AND CLINICAL TUBERCULOSIS OFFICER—Applications are invited for the above appointment, at a salary of £500 per annum, plus a present war bonus of 10 per cent. (£50).

Candidates must be fully qualified and registered Medical Practitioners, with experience in the diagnosis and treatment of tuberculosis, and must devote their whole time to the duties of the office. The successful candidate will be required to assist in the general administrative work of the Department, and in the Medical Inspection of School Children, and, if required, to act as Consulting Officer to the Local Insurance Committee, and will be under the direction of the Medical Officer of Health and School Medical Officer.

Particulars of the duties may be obtained on application to the Medical Officer of Health, Town Hall, Barrow-in-Furness.

Applications, stating age, experience, and qualifications, and not more than three recent testimonials, must be received at my office not later than Monday, 22nd June.

Canvassing, either directly or indirectly, will be deemed a disqualification.

By order.

Town Hall, Barrow-in-Furness. L. HEWLETT, Town Clerk.

Huntingdonshire County Council.

ASSISTANT COUNTY MEDICAL OFFICER AND ASSISTANT SCHOOL MEDICAL OFFICER (Woman).—The Huntingdonshire County Council are prepared to receive applications for the above appointment.

Applicants must be women who are duly qualified and registered Medical Practitioners and have had experience in Tuberculosis, and preferably possess a D.F.H.

The Assistant County Medical Officer's work will be primarily that pertaining to the duties of School Medical Officer, but she must be prepared to undertake, in addition, such other duties as the County Council or the County Education Committee may from time to time direct.

The officer appointed will be required to reside at such place as the Council may direct, she must give her whole time to the duties of the office, and act under the supervision of the County Medical Officer of Health.

Preference will be given to applicants who have had experience of Diseases of Children and Retraction work.

The salary offered is £500 per annum and in addition £100 per annum for travelling expenses.

The duties will commence on the 1st September next.

The appointment may be determined by three months' notice on either side.

Applications, accompanied by copies of three recent testimonials, must be delivered to the Clerk of the County Council, County Offices, Huntingdon, marked "Assistant School Medical Officer," not later than the 1st July, 1920.

Council Offices, Huntingdon. J. PERCY MAULE, Clerk.

Victoria Hospital, Burnley (100 beds).

Wanted, Additional **HOUSE SURGEON**. Salary £250, with residence, board, and washing. Candidates who must be fully qualified, are requested to send in their applications, with copies of testimonials, as early as possible, to F. A. HARGREAVES, Hon. Sec., 7, Grimshaw-street, Burnley.

This Hospital is approved by the London University for the purpose of M.B. and M.S. Examinations.

The Royal Infirmary, Sheffield

(351 beds).—The Weekly Board of Management invite applications for the following posts:

ONE HOUSE SURGEON.**ONE HOUSE PHYSICIAN.**

The salary attached to each appointment is £150 per annum, with board and residence.

Applications, together with copies of recent testimonials, should be addressed to

Board Room, May, 1920.

JNO. W. BARNES, Secretary.

The Gloucestershire Royal Infirmary

AND EYE INSTITUTION (140 beds).—Applications are invited for the post of **HOUSE PHYSICIAN (Male)**. The appointment is for six months, which may be extended for similar periods by re-election from time to time. Salary at the rate of £175 per annum, with board, residence, and laundry.

Candidates who must be fully qualified, should send in their applications, stating age and nationality, and accompanied by not less than three testimonials of recent date to the undersigned.

Gloucester, June 3rd, 1920.

G. HURFORD, Secretary.

West Bromwich and District Hospital

(105 beds).—Wanted, a **RESIDENT HOUSE SURGEON**. He must be doubly qualified and married. Salary £200 per annum, with board, residence, and washing.

Applications, stating age, and if possessing a knowledge of Ophthalmic Surgery, etc., to be sent to the Honorary Secretary, T. Foley Dache, Esq., J.P., Lombard House, West Bromwich.

The candidate appointed will be required to take up his duties about the 24th May.

By order of the Board.

FRANK I. HANCOCK, Secretary and Superintendent.

Assistant Medical Superintendent.

Applications are invited for the post of **RESIDENT ASSISTANT MEDICAL SUPERINTENDENT** of the newly-erected **WELLHOUSE HOSPITAL** at Barnet (204 beds). To take up the duties about October next. Salary £250 per annum, with rail fares, furnished quarters, and laundry.

Candidates must state age, qualifications, and experience, and be legally qualified and registered. Applications, with copies of three recent testimonials, to be addressed to **ARTHUR WILKINSON, Clerk's Office**, 1, Wellhouse-lane, Barnet, not later than Monday, 25th June, 1920.

Royal Salop Infirmary, Shrewsbury.

HOUSE PHYSICIAN wanted immediately. Candidates must be registered under the Medical Acts.

Applications, with recent testimonials (not less than three) to be sent to the undersigned forthwith.

Salary at the rate of £200 per annum, with board, residence, and laundry.

The duties consist of being responsible to the medical staff for the medical treatment to assist the Pathologist, and to act as Anæsthetist.

The House Physician is the Junior Resident Officer.

29th May, 1920.

ALFRED SUGDEN, Secretary.

Coventry Education Committee.

The Committee have vacancies for **TWO SCHOOL DENTISTS**, and applications are invited from duly qualified men or women for the posts, in commencing duties as early as possible.

Salary according to City Council's Scale D—viz., £40, rising by £25 to £500, with the possibility of transfer in due course for efficient service to Scale C—viz., £500 to £700.

Form of application, which must be returned not later than noon on Tuesday, 29th June, 1920, together with particulars of appointment, must be obtained from the undersigned on receipt of a stamped and addressed foolscap envelope.

FRANK HOSKIN, Secretary.

Education Department, Council House, Coventry, 7th June, 1920.

West Riding County Council.

MIDDLETON-IN-WHARFEDALE SANATORIUM, near Ilkley. **ASSISTANT MEDICAL OFFICER (Non-Resident)**.—The County Council of the West Riding of Yorkshire invite applications for the appointment of an Assistant Medical Officer (non-resident) for the Middleton-in-Wharfedale Sanatorium, near Ilkley.

The salary will be £500 per annum.

Further particulars, which must be returned not later than the undersigned by whom all applications must be received not later than the 25th June, 1920.

FRANCIS ALVET DARWICK, Clerk of the County Council.

County Hall, Wakefield 5th June, 1920.

Salop County Council.—Medical

INSPECTION OF SCHOOL CHILDREN, MATERNITY AND CHILD WELFARE.—**TWO ASSISTANT MEDICAL OFFICERS** are required to work under these schemes. Applications are invited from Medical Practitioners.

Salary £217 10s. per annum, rising by six equal annual increments to a maximum of £500, with travelling and out-of-pocket expenses on a fixed scale.

Applications should be sent on or before 26th June, to the County Medical Officer of Health, County Buildings, Shrewsbury, from whom forms of application, conditions of appointment, list of duties, and any other information can be obtained.

25th June, 1920.

J. PERCY MAULE, Clerk.

Whitehaven and West Cumberland INFIRMARY.—RESIDENT HOUSE SURGEON required. Salary £225 a year, with board, laundry, and attendance. Applications, with three recent testimonials, to be sent to the Secretary, Infirmary, Whitehaven.

Leeds Public Dispensary.—Wanted at once, fully qualified RESIDENT MEDICAL OFFICER. Salary £200, with board, residence, and laundry. Separate sitting room. Women eligible. Applications, with copies of three recent testimonials, to be addressed to the Secretary of the Faculty, Public Dispensary, North-street, Leeds.

Huddersfield Royal Infirmary.—SENIOR HOUSE SURGEON wanted at above. Salary £250 per annum, with board, apartments, and laundry. Applications from duly qualified candidates to be addressed, together with copies of testimonials, to the Secretary, Mr. JOSEPH BATE, Royal Infirmary, Huddersfield.

The Hospital for Sick Children, Newcastle-upon-Tyne (74 beds).—Applications are invited for SENIOR and JUNIOR RESIDENT MEDICAL OFFICERS. Salary £250 and £200 per annum respectively, with board, residence, and laundry. Duties to commence beginning of July. Applications, stating age, and copies of testimonials, to be sent to the Secretary, Mr. NEIL BROWNE, Star Buildings, 28, Northumberland-street, Newcastle-upon-Tyne.

Royal Sussex County Hospital, Brighton.—JUNIOR HOUSE SURGEON (Male) required. He must hold a Medical and Surgical qualification of the United Kingdom and be duly registered under the Medical Act. He must be unmarried, and be duly elected under thirty years of age. Salary £139 per annum, with board, residence, and laundry. Applications, with proof of the above qualifications, together with copies of recent testimonials, must reach the Secretary not later than 30th June, 1920.

L. W. LANCASTER-GAYE, Secretary.

Bolton Infirmary and Dispensary (140 beds, mostly surgical, including Children's Wards).—Applications for the appointment of SECOND HOUSE SURGEON are invited from L.B.S.s having a registered Medical and Surgical qualification. Salary £250 per annum, with board, residence, and attendance. The resident staff is composed of three Lady House Surgeons. Applications, stating age, with copies of testimonials, should be forwarded to the undersigned, from whom further particulars may be obtained.

ALBERT E. BRISCOE, Secretary.

City of Bradford.—Applications are invited from fully qualified Medical Practitioners for the post of ASSISTANT BACTERIOLOGIST. Salary £600 a year, payable monthly. Candidates should have had some special training in Bacteriology and Serological work. A statement of duties and form of application may be had from the undersigned. Applications should be returned before the 25th June, 1920.

JOHN J. BUCHAN, Medical Officer of Health.

Town Hall, Bradford.

Royal Halifax Infirmary.—Wanted, SENIOR, SECOND, and THIRD HOUSE SURGEONS (Male), unmarried. Must be doubly qualified and registered. Salary: Senior, £350; Second, £300; and Third, £275 per annum, with board, residence, and laundry. The Infirmary contains 162 beds and has a large Eye, Ear and Throat Department. Applications, with copies of testimonials, to be sent to the undersigned, from whom particulars of the duties may be obtained.

A. MIDDLEY, Secretary.

14th June, 1920.

King Edward VII. Welsh National MEMORIAL ASSOCIATION.—Applications are invited for ASSISTANT TUBERCULOSIS PHYSICIANS, a number of whom the Association is proposing to appoint under its scheme. The salary offered is £200 per annum, with travelling and subsistence allowance when away from the base.

Applications, stating full qualifications and experience, with copies of three recent testimonials, should reach the undersigned not later than June 25th.

F. J. ALMAN, Secretary.

Memorial Office, Westgate street, Cardiff.

County Borough of Bury.—Venereal DISEASES OFFICER.—Applications are invited from fully qualified Medical Men for the appointment of a Part-time Venereal Diseases Officer. For the present the engagement will be for two seasons a week, and the remuneration offered is at the rate of 3 guineas a week of two hours. Further particulars and form of application may be obtained from the Medical Officer of Health, Clough street, Bury. Applications to be delivered to the undersigned not later than 25th June, 1920.

JOHN HASTLEY, Town Clerk.

25th June, 1920.

Wolverhampton and Staffordshire GENERAL HOSPITAL.—A HOUSE SURGEON wanted. The Hospital contains 214 beds, including the usual special departments, and is recognised by the various Examining Bodies for a part of the requisite attendance on Medical and Surgical Practice. Candidates must be registered under the Medical Act. The appointment is for one month, with a salary at the rate of £200 per annum, board, laundry, and attendance. Applications, with copies of testimonials, to be sent to the undersigned, from whom further particulars may be obtained.

W. B. HAYES, House Governor and Secretary.

Wolverhampton, 19th June, 1920.

Doncaster Royal Infirmary and Dispensary.—Wanted at once, ASSISTANT HOUSE SURGEON, fully qualified and registered. The scope of work is wide, and valuable experience in Medicine and Surgery is afforded. Salary £225, with board, residence, and laundry. Applications, accompanied by not less than three recent testimonials, to be sent at once, marked "House Surgeon," to H. KINGSLEY PEARCE, Secretary.

Bristol General Hospital.—CASUALTY HOUSE SURGEON.—The Committee invites applications for this appointment. Salary at the rate of £175 per annum, with board, residence, &c., provided in the house. The appointment is for six months. Candidates must be registered under the Medical Act, and must have had recent experience in the administration of Anesthetics. Applications, stating age, qualifications, and experience, with copies of testimonials, should be forwarded to the undersigned immediately from whom further particulars may be obtained.

THOMAS W. GREGG, Secretary.

St. Helens Education Committee.—WHOLE-TIME DENTIST.—Applications are invited for appointment of Dentist in the Medical Officer of Health's Department at a salary of £450 per annum.

The duties will include the treatment of children attending the schools in the borough.

The candidate appointed will be required to devote the whole of his time to the work of the corporation.

Particulars of the appointment and forms of application may be obtained from the Medical Officer of Health, Town Hall, St. Helens, and applications must be delivered to him not later than 30th June.

JOHN A. HARTLEY, Secretary for Education.

Town Hall, St. Helens.

Wigan Infirmary.—Vacancies occur for:—

- An HONORARY SURGEON,
- An HONORARY PHYSICIAN,
- An ASSISTANT HONORARY SURGEON,
- An ASSISTANT HONORARY PHYSICIAN,

who must be legally registered to practise Medicine and Surgery, and reside preferably within six miles of the Infirmary. Applications, with copies of two recent testimonials, stating age, qualifications, &c., to reach the undersigned (from whom further information can be obtained) by Monday, June 28th.

HENLEY LUCAS, Gen. Supt. and Secretary.

By order of the Board of Management of the Wigan Infirmary.

Wigan Infirmary (fully equipped General Hospital, 160 beds).—Wanted immediately, SENIOR HOUSE SURGEON. Salary £250 per annum, with board, apartments, and washing. Excellent opportunity for Surgical work. Doubly registered. Applications, stating age, nationality, and qualifications, with copies of testimonials, to be sent to the undersigned at once.

HENLEY LUCAS, Gen. Supt. and Secretary.

Gravesend Hospital.—House SURGEON.—Applications are invited from fully qualified Men for the above post, which will be vacant on July 16th, 1920. The Hospital contains 72 beds and cots, and has an Out-patient and Casualty Department.

Owing to the unique situation of the Hospital, at the entrance to the Port of London, many accidents and interesting cases are treated, and the post affords an excellent opportunity for Surgical experience.

Salary £200 per annum, with board, residence, and laundry, will be paid to the successful applicant.

Applications, with copies of three recent testimonials, should be sent to the undersigned immediately.

June 2nd, 1920.

O. R. CHAPMAN, Secretary.

City of Leeds Tuberculosis Sanatorium.—The Health Committee invite applications for the post of RESIDENT ASSISTANT MEDICAL OFFICER of the Tuberculosis Sanatorium at Killingbeck (120 beds) from registered Medical Practitioners of either sex. Applicants must be unmarried and preference will be given to those who have had experience in the diagnosis and treatment of Tuberculosis.

Salary £300 per annum, with board, residence, and laundry.

Applications, stating age and experience, together with copies of three recent testimonials, endorsed "Medical Assistant, Tuberculosis," should be delivered to the undersigned not later than Wednesday, June 30th.

Leeds, 12th June, 1920.

ROBERT E. FOX, Town Clerk.

City of Leeds.—Assistant Medical OFFICER FOR MATERNITY AND CHILD WELFARE.—Applications are invited from qualified and registered Medical Women for the post of Assistant Medical Officer for Maternity and Child Welfare. Applicants must have had experience in a General Hospital subsequent to qualifying, and also experience in the treatment of Children's Diseases, either in a sick children's hospital or in the wards of a general hospital set apart for children. Experience in the treatment of Diseases of Women and the possession of the D.P.H. would be considered additional qualifications. The salary offered is £250 per annum.

Intending candidates should apply in the first case to the Medical Officer of Health, 12, Market-buildings, Vicar-lane, Leeds, for particulars as to the duties of the appointment and for form of application.

Applications, together with copies of three recent testimonials, endorsed "Maternity and Child Welfare Officer," should be delivered to the undersigned not later than Wednesday, June 30th.

Leeds, 12th June, 1920.

ROBERT E. FOX, Town Clerk.

Royal Isle of Wight County Hospital,
Hyde.—Wanted immediately, **RESIDENT MEDICAL OFFICER** (Male), doubly qualified and registered. Ophthalmic experience essential. Salary at the rate of £250 yearly. Apply, enclosing copies of testimonials, &c., to Secretary before June 30th.

Bradford Children's Hospital.—
HOUSE SURGEON wanted, doubly qualified. Salary £200, with board, residence, and laundry. Applications, stating age, with testimonials, to 19, Market-street, Bradford. C. V. WOODCOCK, Secretary.

Royal Berkshire Hospital (220 beds).
Wanted, a **HOUSE SURGEON**, who must be fully qualified and registered. Salary £200 a year, with board, residence, and laundry. The appointment is for six months. Applications, with copies of recent testimonials, should be addressed to the undersigned. Reading, June 15th, 1920. HERMAN BURNAY, Secretary.

The Sheffield Royal Hospital.—
Vacancy for Resident.—Applications are invited for the post of **ASSISTANT CASUALTY OFFICER**. Salary £150 per annum, with board, washing, and residence in the Hospital. Candidates must be registered Medical Practitioners and unmarried. Applications, with copies of testimonials, to be addressed to me as early as possible. The Board Room, 21st May, 1920. JOR W. ROBINSON, Secretary.

Rochdale Infirmary and Dispensary
(110 beds).—Wanted, a **SENIOR HOUSE SURGEON**, unmarried. Salary £250 per annum, with board, residence, and laundry No outside visiting. Applications, with testimonials, stating age, nationality, &c., to be sent to the undersigned, endorsed "House Surgeon." Infirmary Office, Rochdale. HAROLD HOBBOCKS, Secretary.

Worcester County and City Mental Hospital, Powick.—Wanted, **JUNIOR ASSISTANT MEDICAL OFFICER**, unmarried. Salary £300, with board, furnished apartments, washing, and attendance. Subject to deductions under the Asylums Officers' Superannuation Act, 1909. Apply, with copies of testimonials, to the Superintendent.

Northampton General Hospital.—
Wanted, a **HOUSE SURGEON**. Salary £200 per annum. Either sex. Board, residence, washing, and attendance provided. Applications, stating age, qualifications, &c., with copies of testimonials, to be sent to the undersigned. June 14th, 1920. C. S. FISKE, Secretary-Superintendent.

Royal West Sussex Hospital,
Chichester (100 beds).—Wanted, a **HOUSE SURGEON** for the Home Institution, to take up duties on the 9th August next. Salary £200 a year, with board and residence in Hospital. Applications, stating age and qualifications, accompanied by three recent testimonials should be addressed to the undersigned, from whom further particulars may be obtained. HERBERT S. AXFORD, Secretary.

Essex County Hospital, Colchester.—
Required in July, 1920, a **HOUSE PHYSICIAN** (Male), experienced in Anaesthetics. Salary £200 per annum, with board, washing, and residence in the Hospital. Candidates must be fully qualified and registered. Applications, with copies of three recent testimonials, to be sent on or before Wednesday, 23rd June, to ALFRED G. BUCK, Secretary.

Salisbury General Infirmary.—
Wanted, **ASSISTANT HOUSE SURGEON** (Male or Female). Salary £150, with apartments, board, lodging, and washing. Candidates must be unmarried, fully qualified, and registered. All applications, with testimonials, to be sent to the Secretary not later than the 3rd July next, of whom the rules relative to the duties may be obtained on application. The duties will commence on the 17th day of July, 1920. S. BUCHANAN SMITH, Secretary.

Newcastle-upon-Tyne Education COMMITTEE.—Applications are invited for the following full-time appointments in the School Medical Service:
(a) **ASSISTANT SCHOOL MEDICAL OFFICER**. Salary £500 per annum, rising to £600 per annum to a maximum of £750 per annum.
(b) **Fully qualified DENTAL SURGEON**. Salary £400 per annum, rising by £25 per annum to a maximum of £500 per annum.
For form of application and particulars of duties, send stamped addressed envelope to the Director of Education, Northumberland-road, Newcastle-upon-Tyne.

City Mental Hospital, Humberstone,
Leicester.—**ASSISTANT MEDICAL OFFICER** (Male or Female) required, under "thirty-five years of age (if not already in the Public Asylum Service). Preference given to candidates who have held a house appointment and who possess, or intend to obtain, a diploma in Mental Disease. Commencing salary £600 per annum, together with a self-contained partly furnished flat, valued for pension purposes at £50 per annum. Candidates not in the Asylum Service may deduct period of Army service from their actual age. Apply, Medical Superintendent.

The General Hospital, Birmingham.

Applications are invited for the following Resident Appointments—
1. **HOUSE SURGEON**, from Dec. 15th, 1920, to April 30th, 1921.
2. **HOUSE SURGEON**, from Nov. 1st, 1920, to April 30th, 1921.
The holders of the above posts will be required to act as **Casualty House Surgeon** for three months from August 1st.
Applications are also invited for the posts of **HOUSE SURGEON** and **HOUSE PHYSICIAN** for six months from August 15th. The holders of these posts will not be required to act as **Casualty House Surgeon**.
Candidates must be fully qualified and registered, should send in their applications to the undersigned on or before July 27th, 1920, together with certificates of registration.
A. H. LEANEY, House Governor.

The General Hospital, Birmingham.

Applications are invited from qualified Medical Practitioners (Men or Women) for the post of **RESIDENT ANAESTHETIST**. The appointment will be for six months in the first instance, and will be renewable.

A salary of £100 will be paid, plus board, lodging, and laundry. Applications, with certificates of registration and copies of recent testimonials, should be sent by July 1st to the House Governor, from whom particulars may be obtained.

Brighton, Hove & Preston Dispensary

(Western Brighton and GARR BURTON MEMORIAL HOSPITAL (16 beds).—A **RESIDENT MEDICAL OFFICER**, Male or Female, will be appointed on Tuesday, June 29th.
Salary £200 per annum, with board and residence. Candidates must be unmarried, and must make application in writing, stating age, accompanied by recent testimonials as to character and qualifications, to be sent to the Assistant Secretary, 113, Queen's-road, Brighton, before June 25th.

Select-d candidates will be asked to interview the Committee at 12 o'clock on the day of appointment.
N.B.—This appointment gives an excellent opportunity for reading when the Medical Officers desire to take a higher degree.
Candidates may prove by reference to the current Medical Register, or by production of a Certificate of Registration, that they are legally qualified to practise both Medicine and Surgery.
O. SOMERS CLARKE (Colonel), Hon. Secretary.
A. F. LEAKE, Assistant Secretary.
113, Queen's-road, Brighton, 1920.

Worcestershire County Council.

ASSISTANT COUNTY MEDICAL OFFICERS.—The above Council are about to appoint Seven Assistant County Medical Officers, and applications are now invited for these posts.

The duties will be (1) to undertake the Medical Inspection and Treatment of School Children; (2) to act as Assistant Tuerculosis Officers; (3) to supervise Maternity and Child Welfare Work; and (4) to undertake the Examination of Mentally Defective under the various Acts. Applicants will be expected to have had experience in these subjects.

Candidates, either male or female, must be registered Medical Practitioners of suitable experience and qualifications (Diploma in Public Health desirable), and be between twenty-five and forty-five years of age. The persons appointed will be required to reside in the districts assigned to them by the County Council, to devote the whole of their time to the work, and will be subject to the directions of the County Medical Officer.

The salary of each Medical Officer will be £507 per annum, rising to £550 by two equal annual instalments, in addition to allowances for travelling and personal expenses.

Experience in motor-driving is desirable. The engagements will be subject to three months' notice on either side.

Applications (on forms to be obtained from the County Medical Officer), accompanied by not more than three recent testimonials, must be received by 12 noon on Monday, the 5th July, 1920, addressed to the County Medical Officer, 23, Foregate-street, Worcester, and endorsed "Assistant County Medical Officer."

Canvassing disqualified persons, and neither the names of the Members of the County Council nor of the Committee will be supplied.
C. H. BIRD, Clerk of the County Council.

Shirehall, Worcester, 15th June, 1920.

Worcestershire County Council.

SCHOOL OCULIST.—The above-named Council are about to appoint a School Oculist who must be specially experienced in Eye Diseases and their treatment, and competent to undertake the Correction of Errors of Refraction.

The duties will be to examine, and, where necessary, to treat, the eyes of children in the County Schools.

Applicants, either male or female, must be registered Medical Practitioners of suitable experience and qualifications and be between twenty-five and forty-five years of age. The person appointed will be required to reside in the district assigned to him or her by the County Council, to devote the whole of his or her time to the work, and will be subject to the directions of the County Medical Officer.

The salary will be £520 per annum, rising to £550 by two equal annual instalments, in addition to allowances for travelling and personal expenses.

Experience in motor driving is desirable. The engagement will be subject to three months' notice on either side.

Applications (on forms to be obtained from the County Medical Officer), accompanied by not more than three recent testimonials, must be received by 12 noon on Monday, the 5th July, 1920, addressed to the County Medical Officer, 23, Foregate-street, Worcester, and endorsed "School Oculist."

Canvassing disqualified persons, and neither the names of the Members of the County Council nor of the Committee will be supplied.
C. H. BIRD, Clerk of the County Council.

Shirehall, Worcester, 15th June, 1920.

County Mental Hospital, Stafford.—
Required, as soon as possible, **LOCUM TENENS ASSISTANT MEDICAL OFFICER.** Terms 8 guineas a week, all found. Apply, giving references, to the Medical Superintendent.

Liverpool Stanley Hospital.—Resi-
DENT PHYSICIAN and SURGEON for July 1st. Ladies eligible. £150, with board, residence, and laundry. Applications, stating qualifications and experience, with copies of recent testimonials, to
FRANK WHITE, Hon. Secretary.

Royal Buckinghamshire Hospital,
Aylesbury.—Wanted, a Male **HOUSE SURGEON.** Salary £200, board, residence, and laundry. Applications and copies of testimonials to be sent to the undersigned.
25, Walton-street, Aylesbury. STANLEY R. WILKINS, Secretary.

Rotherham Hospital.—Wanted,
JUNIOR HOUSE SURGEON, Male, qualified. Salary £150, with board, lodgings, and washing. Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate-street, Rotherham.

Hull Royal Infirmary, Hull.—
Wanted at once
ASSISTANT HOUSE SURGEON. Salary £150 per annum. Board and residence. Applications, together with copies of recent testimonials, should be addressed to
D. BROOKS, Secretary.

Gloucester County Asylum.—Junior
A.M.O. required, Male, single. Salary £300 per annum, with board, apartment, and laundry. Subject to the provisions of the Asylum Officers' Superannuation Act, 1909. Apply, with copies of three recent testimonials, to the Medical Superintendent.

Brompton Hospital Sanatorium,
Frimley.—The Committee of Management of the Hospital for Consumption and Diseases of the Chest, Brompton, invite applications for the post of **ASSISTANT RESIDENT MEDICAL OFFICER** at the Sanatorium. Salary £350 per annum, with board and residence. Candidates must be registered Practitioners, and must have held a resident Hospital appointment for six months. Applications, with testimonials, must be sent in to the undersigned at the Hospital at Brompton on or before Tuesday, June 29th.
FREDERICK WOOD, Secretary.

Brompton Hospital, S.W. 3, June, 1920.

King Edward VII. Hospital, Cardiff.
HOUSE SURGEON required. One with experience in Ear, Nose, and Throat Work preferred. Candidates must be registered in Medicine and Surgery under the Medical Act.
The appointment will be for six months, subject to renewal.
Salary at the rate of £200 per annum, with board, residence, and laundry.
Applications, endorsed "House Surgeon," stating age, qualifications, &c., with copies of recent testimonials, should be sent to the undersigned, from whom particulars may be obtained.
June 15th, 1920. LEONARD D. REA, General Superintendent.

Middlesbrough Education Committee.
Appointment of **SCHOOL DENTIST.**—The Middlesbrough Education Committee invite applications for the appointment of School Dentist. The Officer appointed must be a duly qualified and registered Dentist, and will be required to act under the direction of the School Medical Officer. He will not be allowed to engage in private practice. Salary £100 per annum.
Applications, stating age, qualifications, and experience, accompanied by copies of not more than three recent testimonials, should reach the undersigned as early as possible, but in no case later than Wednesday, July 23rd, 1920.
EDWARD BRECKWITH, Director and Secretary.
Education Office, Middlesbrough, 15th June, 1920.

East Suffolk County Education Committee.—**ASSISTANT SCHOOL MEDICAL OFFICERS.**—
The above named Committee are requiring One Whole-time Male Assistant School Medical Officer and One Whole-time Female Assistant School Medical Officer. Applications are invited from registered Medical Practitioners. The duties are mainly inspection of School Children and direction of medical treatment. Salary £500 per annum, with board, residence, and laundry. The appointment will be subject to three months' notice on either side. Preference will be given to applicants possessing experience in Refractive Work.
Applications, accompanied by copies of three recent testimonials, must reach the Secretary, Education Office, County Hall, Ipswich, not later than 25th June, 1920.

East Suffolk County Education Committee.—**DENTAL SURGEON.**—Applications are invited from registered Dental Practitioners for the post of Whole-time Dental Officer to work under the supervision of the County Medical Officer of Health. Duties are mainly those of inspection and treatment of Dental Patients in School Children, but the successful candidate may be required by the County Medical Officer to complete the scheme for Dental Treatment as relating to public health outside. Salary £200 per annum, with board, residence, and laundry. The appointment will be subject to three months' notice on either side.
Applications, accompanied by copies of three recent testimonials, must reach the Secretary, Education Office, County Hall, Ipswich, not later than 25th June, 1920.

Wormley Infant Welfare Centre.—
A **MEDICAL OFFICER** (Permanent) is wanted at once for an Infant Welfare Centre (half an hour from Liverpool-street) on alternate Tuesdays. Fee 30s. per session, with expenses.—Applications to be made in the first place by letter, not later than June 25th, to No. 164, THE LANCET Office, 423, Strand, W.C.2.

Royal Lancaster Infirmary.—House
SURGEON, unmarried, doubly qualified, wanted for the Royal Lancaster Infirmary. Applicants are invited to state essential particulars and when at liberty to commence duties. Forms of application may be obtained from, and must be sent in at once to,
NEVILLE HOLDEN, Honorary Secretary.

University of Glasgow.—Lectureship
in **OPHTHALMOLOGY.**—The University Court of the University of Glasgow will shortly proceed to the appointment of a Lecturer in Ophthalmology in place of Dr. A. Maitland Ramsay, retired.
Applicants must hold the post of Surgeon to an Institution in Glasgow for the treatment of Diseases of the Eye, and must possess the necessary clinical facilities for the instruction of Students.
Further particulars as to the duties, emoluments, &c., may be had on application to the Secretary of the University Court, The University of Glasgow, University of Glasgow, June, 1920.

Royal Hospital for Incurables,
Donnybrook, Dublin.—**RESIDENT MEDICAL OFFICER** wanted for this Hospital. Must be qualified in Medicine, Surgery, and in Compounding. Must be unmarried. Salary £200 per annum, with board and furnished apartments. Lady practitioners are eligible for election to the position. The appointment to be for not less than one year from 1st August, 1920, and the office not to be tenable for more than two years at the discretion of the Committee.
Applications, enclosing copies of testimonials, and stating age and qualifications, to be sent to the undersigned on or before Thursday, July 8th, 1920. The election will take place at the Hospital on Thursday, July 15th, 1920, at 9.30 o'clock A.M., when candidates will be required to be in attendance.
By order, JOHN J. THOMPSON, Registrar.

The Secretary of State for the Colonies.
Is prepared to receive applications for the post of **RADIO-LOGIST** in the **FEDERATED MALAY STATES.**
Salary £7200-£8400 (£840-£850), by two annual increments of \$300 and a further increment of \$600 if confirmed. Three years' agreement and six months' probation in first instance. Private practice as radiologist allowed. Must possess Medical qualification registrable in United Kingdom. Candidates under forty years of age preferred. Further particulars and forms of application can be obtained from the Assistant Private Secretary (Appointments), Colonial Office, Downing-street, London, S.W.1.
No testimonials should be submitted until an application form has been obtained.

The Municipality of Singapore.—
STRAITS SETTLEMENTS.—**HEALTH DEPARTMENT.**
ASSISTANT HEALTH OFFICER.—The Municipal Commissioners of the Town of Singapore desire to engage the services of an Assistant Health Officer. The appointment will be on agreement for three years on a salary of £7500 for the first year, rising by annual increments of \$300 to £8100; and, if service should be continued beyond the expiry of the agreement, to a maximum of £8400, by 2s. 4d., at which increments. The sterling value of the first year's salary will be £750. Half salary will be paid during the voyage out. First-class passage will be paid out and home in terms of Agreement. Applicants must possess a degree or diploma in Public Health or State Medicine recognised by the General Medical Council, and should be under thirty-five years of age. The selected candidate will be required to pass a medical examination as to his fitness for service in a tropical climate. The duties to be performed are generally to assist the Health Officer and the Deputy Health Officer in the duties defined in Article 19 of the "Sanitary Officers (outside London) Order of 1910," and more particularly to supervise and check the work of the Sanitary and Food Inspectors. Applications, stating age, place of birth, and giving details of education, training, and experience generally, and referring to the above requirements serially, with dates, and accompanied by copies of not more than six testimonials, must be lodged with Messrs. C. C. Lindsay and Peirce, 180, Hope-street, Glasgow, the Commissioners' Agents in Britain (who will supply any further information desired by applicants) not later than Tuesday, 22nd June, 1920.

Assistant Medical Officer required for
West Africa, age about thirty, preferably single. Good opportunity for acquiring experience in tropical diseases. Term of service twelve months in the colony under agreement. Inclusive salary at the rate of £650 per annum, with additional allowance whilst acting in absence of Senior M.O. First class passage, quarters, and allowance for travelling expenses provided.—Write, stating age, giving full particulars of past experience, to Box 672, Smiths, 21, Bush-lane, London, E.C.4.

Ship's Surgeon.—Messrs. Elder
Dempter and Co., Limited, have a few vacancies for Surgeons in their West African Service. Pay £20 per month. Fees allowed for attendance on passengers. Length of voyage varies from six to ten weeks, according to particular route.—Apply, Medical Superintendent, Messrs. Elder Dempter and Co., Limited, Colonial House, Liverpool.

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large Practice in Monmouthshire.—Address, with full particulars, to No. 151, THE LANCET Office, 423, Strand, W.C.2.

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Practice, Manchester. Fire, light, rooms, and attendance. £450 per annum to commence.—Replies, 3, Squire-street, Cheetham-hill, Manchester.

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Wanted, well-qualified energetic Man
to take over a good General PRACTICE immediately. Terms to suit buyer.—Applicants please write, stating age, experience, qualifications, and if married, to "T. B. W.," care of Street's, 31, Cornhill, E.C.3.

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West London, who has lately gone in largely for electro-therapeutics, would like PARTNER to manage non-electrical part. No Midwifery has been undertaken just six months. Income about £1200. No panel. Succession in few years. Premium Half Share £300. House available.—Address, No. 162, THE LANCET Office, 423, Strand, W.C.2.

South Coast.—A Partner required
in an old-established General Practice situated at a favourite seaside resort, producing over £2500 per annum. Panel 220. Ample scope to increase. Single man preferred, under forty. Premium £150, for one-third Share.—Quote Folio 1258, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hospital).

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Required, London Cash and Panel
PRACTICE of not less than £1000 per annum. Open to negotiate once. Can pay £2000 or more and the balance by arrangement.—Send details in confidence to J. O. care of Arnold & Sons, 6, Giltspur-street, Dept. 6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hospital).

Wanted in London or near, General
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Wanted in Bournemouth or near, a
good General PRACTICE by experienced Practitioner retiring from a large practice in order to settle on the coast. Income of at least £1500 a year required; larger preferred. Capital ready.—Details, in confidence, to 5551, Mr. Percival Turner, 4, Adam-street, Strand, W.C.2.

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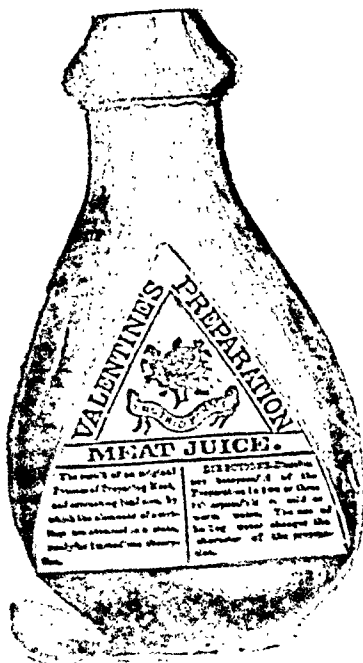
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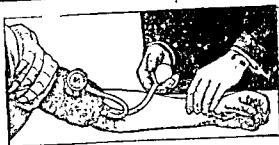
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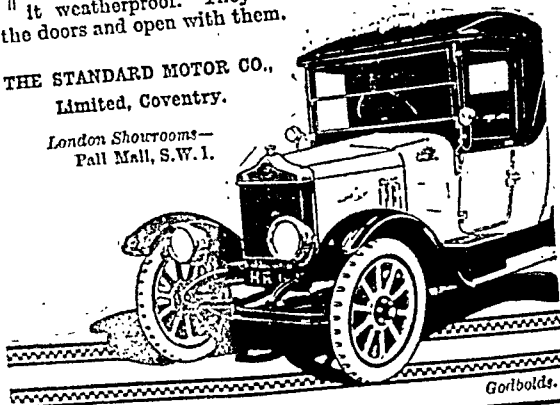
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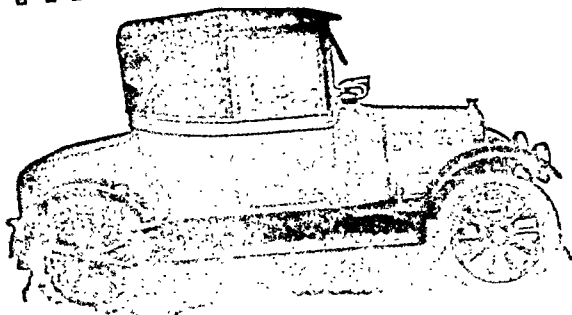
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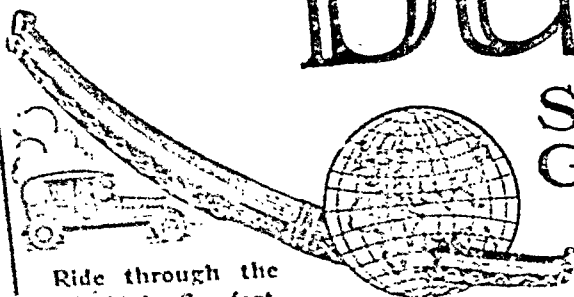
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The ANNUAL SUBSCRIPTION at present is 10s., and each Candidate for Membership has to pay an entrance fee of 10s. and also to guarantee a sum of not less than £1. The privileges of a Member are purely personal. A Member may resign on paying up any arrears that may be due and giving two months' notice in writing to the General Secretary.

On and after the 1st January, 1921, the Annual Subscription will be £1, which payment will provide each Member with Indemnity against damages and costs awarded against him to the extent of £2500 in any case which is undertaken by the Union on his behalf. When this new arrangement comes into force, newly registered medical practitioners will be admitted to Membership without payment of an entrance fee, provided they join the Union within one year of the date of their registration; and a Member elected on and after the 1st July in any year will only pay half the current subscription for that year.

The Fee for Life Membership is £25.

The Guarantee Fund exceeds £11,000, and is available should any occasion require its being called up; but up to the present time all claims for administration, legal, and other costs have been defrayed out of income.

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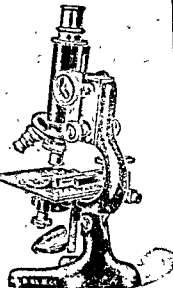
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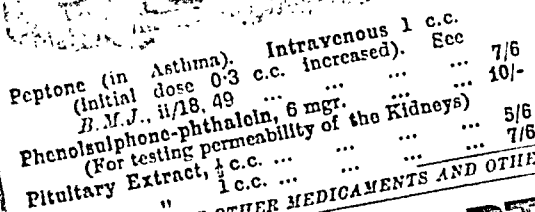
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I wish every success to "Sapon" Soap and hope it will soon supplant many of the harmful chemical preparations on the market.

Yours sincerely,
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A little while ago I sent for one of your free samples of soap to try on a patient who had a very greasy skin. In the meantime I got a baby who showed every sign of soreness. I tried the very best of powders and creams; last week I tried your soap and in two or three days baby was almost better, but we did not know whether it was the soap or the thick (pure) cream I was using until we went away for the day and had to use another soap. In the evening baby was very restless and red, and next morning the whole trouble had returned; it is now settling down again nicely through the use of your Russian Tar Soap. The mother is so delighted that she has ordered some from our local chemist who wanted her to try Coal Tar Soap, but she said none other than your Sapon Russian Tar Soap would do. The chemist has promised to stock this soap and I shall be delighted to buy the same for our own use. Our water here is very hard, and I have passed on your other sample to another lady.

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Again thanking you,
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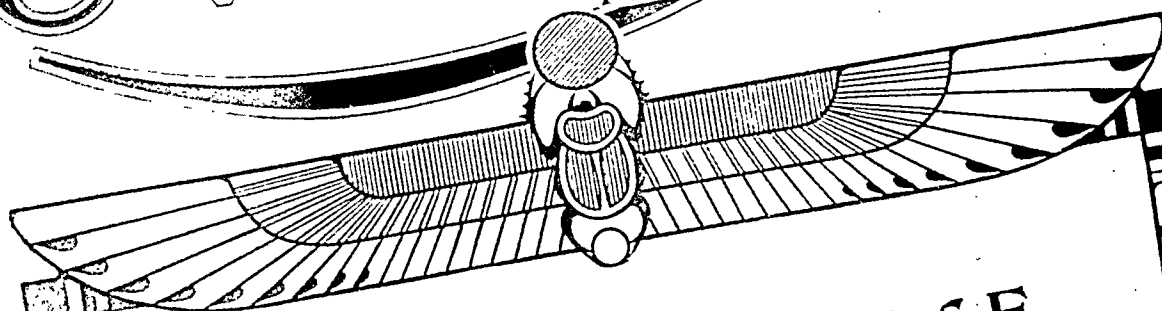
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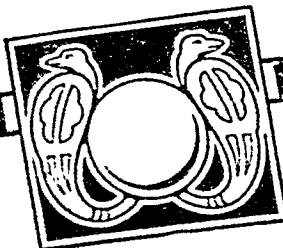
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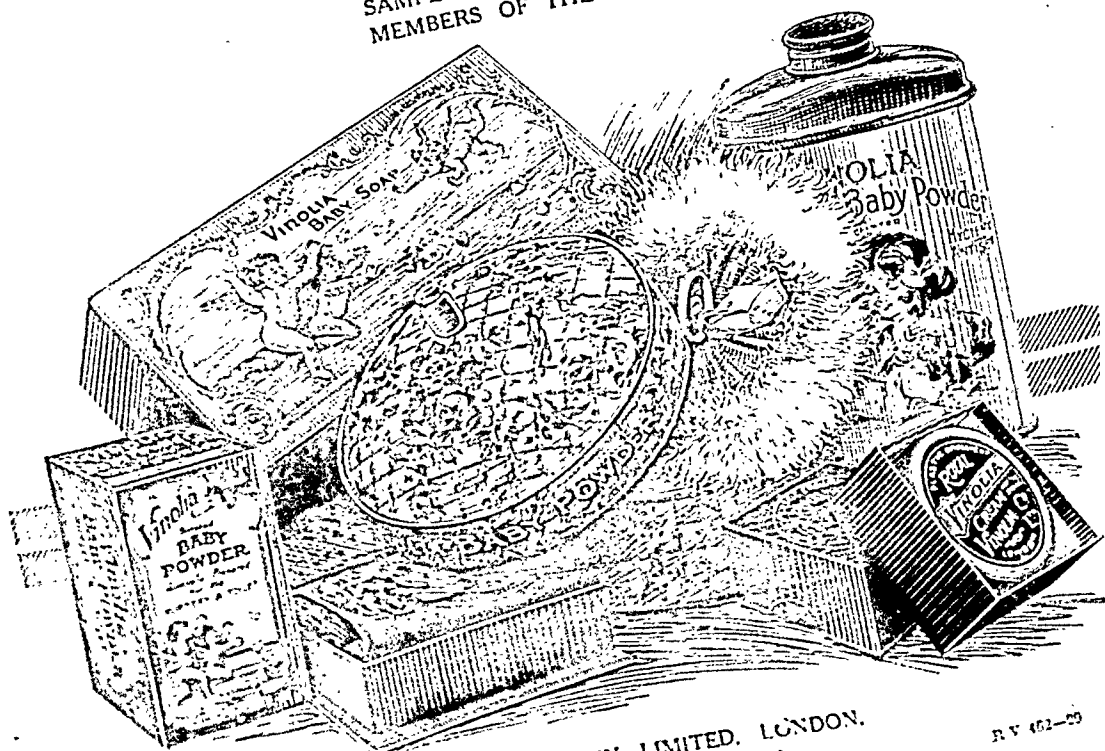
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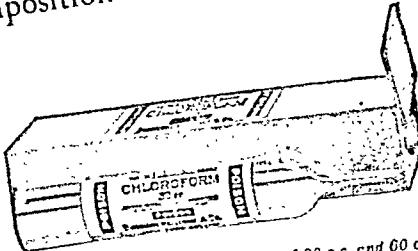
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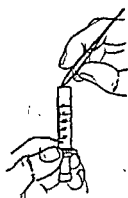
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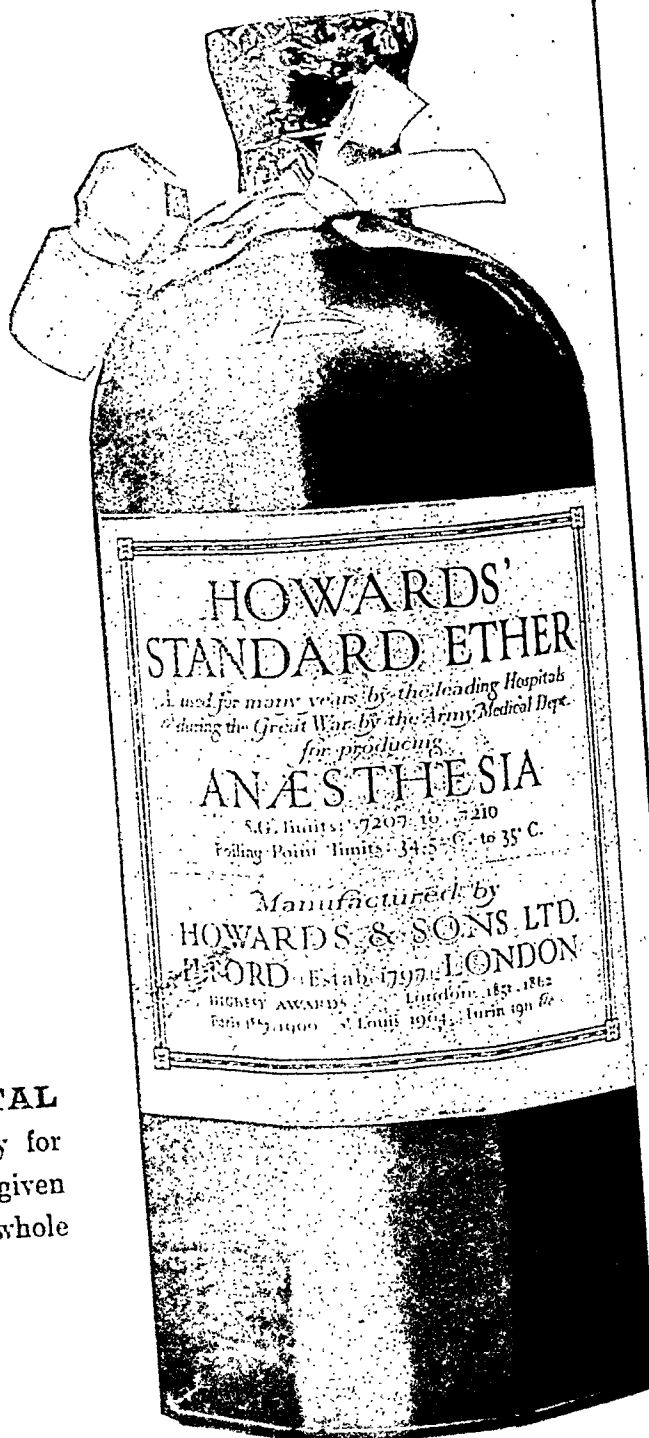
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STUDENTS' GUIDE—SESSION 1920-1921.

THE scheme upon which the Students' Number of THE LANCET is constructed will make it easy, we hope, for all who consult it to find what they seek. The General Council of Medical Education and Registration is the controlling authority of all the medical education of the country, and its responsibility for the efficiency of the Medical Register and for the maintenance of the examination standard is first explained. The student must be taught as well as examined, and as the systems under which he or she can obtain instruction do not conform to one pattern, the various curricula are described in detail, and under their respective headings the necessary information will be found concerning the facilities for medical study offered at the different teaching centres of the United Kingdom. The regulations for the examinations, both preliminary and professional, at these centres are set out so that the student desiring to obtain a medical degree from any university, or a diploma from any medical corporation, may ascertain the course of clinical instruction and the conditions under which submission for examination has to take place. The metropolitan medical schools and hospitals are grouped under the University of London, of which they are constituent bodies, although their educational opportunities are offered to other universities as well as to the medical corporations. A similar plan is adopted in dealing with the provincial universities, the hospitals in direct connexion with which are described with the universities; for though the hospitals may not be official schools of the universities they supply an integral section of the teaching required by the graduates. Upon obtaining degrees or diplomas admission to the Register follows, and greater education begins. The prudent young doctor already knows what he or she desires to make the next step, and there is a large range of choice displayed. The inducements to enter one of the Services should prevail more than they have done of recent years. An account is given of the conditions under which commissions can be obtained in the Navy, Army, Indian, and Air Force Medical Services, and in the Colonial Medical Service.

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION OF THE UNITED KINGDOM.

POWERS, DUTIES, AND CONSTITUTION OF THE GENERAL MEDICAL COUNCIL.

THE powers and duties of the General Medical Council, or "General Council of Medical Education and Registration of the United Kingdom," to give the Council its full title, have been set out in detail in many previous Students' Numbers of THE LANCET. It is first a registering body: no person, even though his qualifications have been obtained, is a legally qualified medical practitioner unless his name appears on the Medical Register. Secondly, it is a standardising body, ensuring that the education of medical men is kept up to an efficient standard by scientific examination. Thirdly, it is a penal and disciplinary body, having power to remove from the Register any practitioner adjudged guilty of conduct "infamous in a professional respect." Fourthly, to the Council is committed the codification of pharmaceutical remedies. The duties of the Council are thus primarily of a public nature, and its construction shows its fitness for its fourfold responsibilities.

The Council at present consists of 38 members, of whom, as will be seen by the annexed list, all but 11 are official representatives of some corporate body. Five members are chosen by the Crown on the advice of the Privy Council, and six others are elected by the members of the medical profession as Direct Representatives.

President of the General Council: Sir Donald MacAlister. Members of the General Council: Sir Norman Moore, chosen by the Royal College of Physicians of London; Mr. Holburt Jacob Waring, F.R.C.S., Royal College of Surgeons of England; Dr. Benjamin Bloomfield Connolly, Apothecaries' Society of London; Mr. Arthur Thomson, F.R.C.S., University of Oxford; Mr. Frederick Gowland Hopkins, M.A., M.B., University of Cambridge; Dr. Robert Howden, University of Durham; Dr. Sydney Russell Wells, University of London; Dr. Henry Roy Dean, Victoria University of Manchester; Dr. Harry Gilbert Barling, University of Birmingham; Dr. Richard Caton, University of Liverpool; Dr. Thomas Wardrop Griffith, University of Leeds; Dr. John Beresford Leathes, University of Sheffield; Sir Isambard Owen, University of Bristol; and Dr. David Hepburn, University of Wales. Dr. William Russell, chosen by the Royal College of Physicians of Edinburgh; Sir James William Beaman Rodson, Royal College of Surgeons of Edinburgh; Dr. James Alexander Adams, Royal Faculty of Physicians and Surgeons of Glasgow; Dr. H. Harvey Littlejohn, University of Edinburgh; Sir Donald MacAlister, University of Glasgow; Dr. Matthew Hay, University of Aberdeen; and Dr. John Yule Mackay, University of St. Andrews. Sir John William Moore, chosen by the Royal College of Physicians of Ireland;

Sir Arthur Gerald Chance, Royal College of Surgeons in Ireland; Dr. Edward Magennis, Apothecaries' Hall of Ireland; Dr. Andrew Francis Dixon, University of Dublin; Denis Joseph Coffey, M.B., National University of Ireland; and Mr. Thomas Sinclair, F.R.C.S., Queen's University of Belfast. Nominated by His Majesty, with the advice of his Privy Council: Sir Francis Henry Champneys, Sir George Newman, Mr. Norman G. Bennett, Dr. John Christie McVail, and Dr. Edward Coey Bigger. Elected as Direct Representatives: Dr. J. A. MacDonald, Sir Thomas Jenner Verrall, Dr. Robert A. Bolam, Mr. E. B. Turner, Dr. Norman Walker, and Dr. Leonard Kidd. Treasurers of the General Council: Sir Norman Moore and Mr. Holburt J. Waring.

THE EDUCATIONAL CURRICULUM.

Professional Education.—The course of professional study after registration occupies at least five years. The Final Examination in Medicine, Surgery, and Midwifery must not be passed before the close of the fifth academic year of medical study.

Registration and Preliminary Examination of Medical Students.—The following are the General Medical Council's Regulations in reference to the registration of students in medicine:—Every medical student should be registered in the manner prescribed by the Council. The registration of medical students is placed under the charge of the Branch Registrars. Every person desirous of being registered as a medical student should apply to the Branch Registrar of the division of the United Kingdom in which he is residing; and should produce or forward to the Branch Registrar a certificate of his having passed a preliminary examination as required by the General Medical Council, and evidence that he has attained the age of 16 years, and has commenced medical study at an institution approved by the Council. The Branch Registrar shall enter the applicant's name and other particulars in the Students' Register and shall give him a certificate of such registration. Each of the Branch Registrars shall supply to the several licensing bodies, medical schools, and hospitals, in that part of the United Kingdom of which he is registrar, a sufficient number of blank forms of application for the registration of medical students. The commencement of the course of professional study recognised by any of the qualifying bodies should not be reckoned as dating earlier than 15 days before the date of registration. In addition to the universities and schools of medicine there are many institutions where medical study may be commenced. Applications for special exceptions are dealt with by the Students' Registration Committee, which reports all such cases to the Council.

Regulations for Maintenance of Register of Medical Students.

The following examinations have been approved by the Council:—(a) The final examinations for the degrees in Arts and Science of any University of the United Kingdom or of the British Dominions. (b) All examinations which are accepted for Matriculation in the Faculties of Arts or

THE MEDICAL EXAMINING BODIES

AND

SCHOOLS OF THE UNITED KINGDOM.

A GUIDE TO THE FACILITIES FOR OBTAINING THE VARIOUS MEDICAL DEGREES AND OTHER QUALIFICATIONS FOR THE BRITISH MEDICAL REGISTER.

I.—ENGLAND AND WALES. THE UNIVERSITIES.

UNIVERSITY OF OXFORD.

THERE are two degrees in Medicine, *B.M.* and *D.M.*, two degrees in Surgery, *B.Ch.* and *M.Ch.*, and two diplomas, *Public Health* and *Ophthalmology*.

Graduates in Arts (*B.A.* or *M.A.*) are alone eligible for the degrees. The most convenient course for the *B.A.* degree for intending graduates in Medicine is to take Responsions, the Preliminary Science Examinations mentioned below, and the Final Honour School of Physiology. In order to obtain the degrees of *B.M.* and *B.Ch.* the following examinations must be passed:—1. Preliminary subjects: Mechanics and Physics, Chemistry, Zoology, and Botany. 2. Professional. (a) First Examination: Subjects—Organic Chemistry, unless the candidate has satisfied the Examiners in Part I. Chemistry in the Natural Science School; Human Physiology, unless he has obtained a first or second class in Animal Physiology in the Natural Science School; Human Anatomy. (b) Second Examination: Subjects—Medicine, Surgery, Midwifery, Pathology, Forensic Medicine with Hygiene, *Materia Medica* and Pharmacology. The approximate dates of the examinations are as follows:—Preliminaries—Zoology, Botany, and Chemistry, December and June; Mechanics and Physics, March and June; Professional (First and Second *B.M.*), June and December.

The First Examination for the degrees of *B.M.* and *B.Ch.* may be passed as soon as the Preliminary Scientific Examinations have been completed. Anatomy and Physiology are to be passed together, and Organic Chemistry may be taken before or after these have been passed.

The Second Examination may be passed after the completion of the first, but Pathology, Hygiene, and *Materia Medica* and Pharmacology may be taken before or with the remaining subjects. Before admission to the Second Examination candidates must present certificates of attendance on a course of laboratory instruction in Practical Pathology and Bacteriology and of having acted as post-mortem clerk for three months, surgical dresser for six months, and clinical clerk for six months. Also they must produce certificates of instruction in Infections and Mental Diseases, and of attendance on Labours, of proficiency in the practice of Vaccination and Anæsthetics, and of having attended a course of Practical Pharmacology. Also in respect of the First Examination candidates must present certificates showing that they have dissected the whole body, once and have attended courses of laboratory instruction in Practical Histology and Practical Physiology.

The degree of *D.M.* is granted to Bachelors of Medicine of the University provided they have entered their thirtieth term and have composed on some medical subject a dissertation which is approved by the professors in the Faculty of Medicine and examiners for the degree of *B.M.* whose subject is dealt with. The degree of *M.Ch.* is granted to Bachelors of Surgery of the University who have entered their twenty-first term, who are members of the surgical staff of a recognised hospital, or have acted as Dresser or House Surgeon in such a hospital for six months, and who have passed the *M.Ch.* examination in Surgery, Surgical Anatomy, and Surgical Operations. This examination is held annually, in June, at the end of the Second *B.M.* Examination.

Diploma in Ophthalmology, the examination is held in July; Diploma in Public Health, in June and November. Travelling Fellowship, Scholarships, and Prizes.—A Radcliffe Travelling Fellowship is awarded annually after an examination held in February. It is tenable for three years and is of the annual value of £200. The examination is in Physiology, Pathology, and Hygiene.

(1) The regulations for the Diplomas in Public Health and Sanitary Science of the various Examining Bodies will be found on p. 473.

and is partly "practical." Candidates must be graduates in Medicine of the University. The holder must travel abroad for the purpose of medical study. Application should be made to the Radcliffe Examiners, Radcliffe Library, University Museum. A Rolleston Memorial Prize is awarded once in two years to members of the Universities of Oxford and Cambridge of not more than ten years' standing for an original research in some Biological subject, including Physiology or Pathology. The Radcliffe Prize, founded by University College (1907), is of the value of £50 and is awarded biennially for research in some branch of medical science. The Theodore Williams Scholarships of the value of £50 each are awarded annually in the subjects of Anatomy, Physiology, and Pathology. A King's College Hospital Barney Yeo Scholarship of £80 is awarded each year. The Scholarships in Science which are offered by several Colleges are open to those who intend to pursue Medicine. The value of these scholarships is usually £60 a year for four years.

In addition to the University lectures and classes the several Colleges provide their undergraduates with tuition for all examinations up to the *B.A.* degree.

In the Radcliffe Infirmary and County Hospital clinical instruction is given by the Regius Professor of Medicine, the Litchfield Lecturers in Medicine and Surgery, and the other physicians and surgeons. Instruction is also given in post-mortem work and Clinical Pathology in connexion with the courses in Pathology. Post-graduate courses will be held at the beginning of October.

More detailed information may be obtained from the University Calendar; from the Examination Statutes, 1918 (both of which are published by the Clarendon Press); from the Regius Professor of Medicine; and from the Professors in the several departments of medical science.

UNIVERSITY OF OXFORD: RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—Courses of instruction are given in connexion with the Oxford University Medical School. These include (1) a course in Practical Medicine by the Regius Professor of Medicine; (2) Clinical lectures by the Litchfield Lecturers in Medicine and Surgery; and (3) tutorial instruction and demonstrations in special Regional Anatomy (medical and surgical), methods of Medical and Surgical Diagnosis, and Surgical Manipulation. (4) Pathological demonstrations and instruction in post mortem work are given by the Assistant Pathologist. Practical Pharmacy is taught in the Radcliffe Dispensary. Opportunities are offered to students who wish to act as surgical dressers and clerks. The Hospital contains 210 beds.

UNIVERSITY OF CAMBRIDGE.

The student must enter at one of the Colleges, or as a non-collegiate student, and keep nine terms (three years) by residence in the University. He must pass the Previous Examination in Classics, Mathematics, &c. If possible, before he comes into residence in October, or he may obtain exemption through the Oxford and Cambridge Schools Examination Board, the Oxford or Cambridge Senior Local Examinations, the London Matriculation Examination, the Scotch Education Department, Responsions at Oxford, and the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield, the Matriculation Examination of the University of Birmingham, or by being graduates of certain other Universities in the United Kingdom. He may then devote himself to medical study in the University, &c. Or he may, as nearly all students now do, proceed to take a degree in Arts by passing either (a) the General Examination and one Special Examination, or (b) two Special Examinations for the ordinary *B.A.* degree, or an Honours degree in one of the Triposes. The Natural Sciences Tripos is taken most frequently, as some of the subjects are practically the same as those for the first and second *M.B.*

For the degree of Bachelor of Medicine (*M.B.*) five years of medical study are required either in Cambridge or at one of the recognised Schools of Medicine. The first three or four years are usually spent in Cambridge till he has passed, say, the examination for Part I. of the Natural Sciences Tripos and the first and second examinations for *M.B.* Hospital practice and many of the requisite lectures may be attended in Cambridge, and some students remain to attend lectures and hospital practice until they

have passed the second part of the second examination for M.B. The laboratories for Botany, Chemistry, Physics, Biology, Zoology, Human Anatomy, Physiology, Biochemistry, Pathology, Bacteriology, Pharmacology, Psychology, and Public Health are well equipped. Addenbrooke's Hospital, the Infectious Diseases Hospital, the Cambridge Research Hospital, and the Field Laboratories are utilised for study and research.

There are three examinations for M.B. The first includes (1) Chemistry, (2) Physics, and (3) Elementary Biology. These parts may be taken together or separately. The second is divided into two parts—viz., (1) Human Anatomy and Physiology; and (2) Pharmacology and General Pathology. The third is also divided into two parts: (1) Principles and Practice of Surgery (including Special Pathology and Midwifery and Diseases Peculiar to Women); and (2) Principles and Practice of Physic (including Diseases of Children, Mental Diseases, Medical Jurisprudence, Pathology (including Hygiene and Preventive Medicine), and Pharmacology (including Therapeutics and Toxicology). The examinations are partly in writing, partly oral, and partly practical, in the hospital, in the dissecting room, and in the laboratories. An Act has then to be kept in the Public Schools, by the candidate reading an original dissertation composed by himself and being examined orally on some subject approved by the Regius Professor of Physic.

Candidates who have passed both parts of the third M.B. examination are admitted to the registrable degree of *Bachelor of Surgery (B.Ch.)* without separate examination and without keeping an Act.

The degree of *Doctor of Medicine (M.D.)* may be taken three years after that of M.B. or four years after that of M.A. The candidate is required to produce certificates of having been engaged in Medical Study for five years, and if an M.A., to pass the same examinations as are required for the degree of M.B. An Act has to be kept, consisting of an original Thesis sustained in the Public Schools with *viva voce* examination; and a short extempore essay has to be written on a topic taken from the general subject of his thesis, whether it be Physiology, Pathology, Pharmacology, the Practice of Medicine, State Medicine, or the History of Medicine.

For the degree of *Master of Surgery (M.Ch.)* the candidate must have passed all the examinations for B.Ch., or, if he is an M.A., have obtained some other registrable qualification in surgery. He is required either (1) to pass an examination in Principles and Practice of Surgery, Surgical Anatomy and Surgical Operations, and Pathology, and to write an extempore essay on a Surgical Subject; or (2) to submit to the Medical Board original contributions to the advancement of the Science or Art of Surgery. Before he can be admitted to the examination two years at least must have elapsed from the time when he completed all required for the degree of B.Ch. Before submitting original contributions he must have been qualified at least three years.

Diplomas are granted in Medical Radiology and Electrolgy, and in Psychological Medicine. Candidates must hold a recognised medical qualification.

Women Students.—Increased facilities have been offered to students of Girton and Newnham Colleges, and they are admitted to the First and Second M.B. Examinations under certain conditions.

University Prize in Medicine.—The one University Prize in Medicine, the Raymond Horton Smith Prize (value £19), is awarded to that candidate for the degree of M.D. who presents the best thesis for the degree during the academical year, provided that he has taken honours in a tripos examination. Medical Studies are endowed by the numerous Natural Science scholarships at the various colleges, information about which can be obtained from the respective Tutors.

An abstract of the Regulations and Schedules of the range of the examinations in Chemistry, Physics, Biology, Pharmacology, and General Pathology may be obtained upon sending a stamped directed envelope to the Registry, Cambridge.

ADDENBROOKE'S HOSPITAL.—Clinical Lectures in Medicine and Surgery, in connexion with Cambridge University School, are given at this hospital twice a week in the academical year; and practical instruction in Medicine and Surgery is given in the wards and out-patients'

rooms by the physicians and surgeons daily during the term time and vacations. The fee for pupilship is 3 guineas a term. All communications by students should be made to Dr. Aldren Wright.

UNIVERSITY OF LONDON.

The University of London was established by Royal Charter in 1836 as an examining and degree conferring body with affiliated colleges but no direct teaching functions. In 1900 it was reconstituted under the Act of Parliament 1898 and became a teaching as well as an examining body. Many schools already existing became constituent colleges, including all the metropolitan medical schools. Lecturers were also appointed in special subjects.

Teaching Staff.—The teaching staff of the University is organised under two heads: 1. Appointed teachers—i.e., such as are appointed by, and are paid out of the funds of, the University. 2. Recognised teachers—i.e., those who have been appointed and are paid by the several schools of the University and other institutions at which instruction is given under the auspices of the University, and who have been recognised by the Senate as conducting work of University standard. Courses by non-recognised teachers may also be approved in schools of the University. The lecturers in the Medical Sciences and the professors in the Faculties of Medicine in University College, London, and King's College, London, will be found enumerated under their respective schools.

Internal and External Students.—All the examinations of this University are open to men and women alike. Matriculated students of the University may be either internal or external. Internal students of the University are students who have matriculated at the University and who are pursuing a course of study approved by the University, either (a) under the direct control of the University or a committee appointed thereby or (b) under one or more of the appointed or recognised teachers of the University. Centres for preliminary and intermediate medical studies have been established by the University at University and King's Colleges. Internal students must pursue their studies at one of the above centres, or at one of the medical schools connected with the University. These are St. Bartholomew's Hospital, Charing Cross Hospital, St. George's Hospital, Guy's Hospital, King's College Hospital, the London Hospital, St. Mary's Hospital, the Middlesex Hospital, St. Thomas's Hospital, University College Hospital, Westminster Hospital, and the London (Royal Free Hospital) School of Medicine and for Women. The London School of Tropical Medicine and the Lister Institute of Preventive Medicine are also recognised as schools of the University in special departments. External students are all other matriculated students, and may pursue their studies at other universities and medical schools, presenting themselves for examination at the University.

Faculty of Medicine.—The Faculty of Medicine grants the joint degrees of M.B., B.S. (*Bachelor of Medicine and Surgery*), and the higher separate degrees of M.D. (*Doctor of Medicine*) and M.S. (*Master of Surgery*).

The curriculum for the Bachelor's degrees is now five and a half years from the time of matriculation, with certain exceptions which must be looked for in the official regulations of the University, to be obtained from the Principal Officer, University of London, South Kensington, S.W.7. The examinations formerly known as the Preliminary, Scientific, the Intermediate, and the Final Examination in Medicine are now respectively entitled the First, Second, and Third Examinations for Medical Degrees. Part II of the former Preliminary Scientific Examination has now been made Part I. of the Second Examination.

A. Internal Students.—In order to be admitted to the Bachelor's degrees a student must normally, after registration as an internal student, have: (1) Attended prescribed courses of study for five and a half years in one or more schools of the University. (2) Passed the following examinations, under the conditions mentioned below: (a) The First Examination for Medical Degrees in Internal Medicine, Chemistry, Physics, and General Biology; (b) the Second Examination for Medical Degrees: Part I., Organic and Applied Chemistry; Part II., Anatomy, Physiology, and Pharmacology, including Pharmacy and Materia Medica; (c) the Third Examination for Medical Degrees, or M.B., B.S. Examination: Medicine and Surgery, Midwifery and Diseases of Women, Pathology, Forensic Medicine and Hygiene.

B. External Students.—To be admitted to the Bachelor's degrees an external student must (1) have passed the Matriculation examination or have been exempted therefrom under Statute 116 not less than five and a half years previously; (2) have passed subsequent examinations similar to those required of an internal student; and (3) have been engaged in professional studies during the five and a half years subsequently to Matriculation and four and a half years subsequently to passing the First Examination for Medical Degrees at one or more of the medical institutions or schools recognised by this University for the purpose, one year at least of the four and a half years to have been spent in one or more recognised institutions or schools.

The First Examination for Medical Degrees (Inorganic Chemistry, Physics, and General Biology) will take place twice in each year, commencing on the Monday following Dec. 7th and on the second Monday in July. It must be passed not less than nine months after matriculation.

The Second Examination for Medical Degrees (Part I.): Organic and Applied Chemistry.—This examination will take place twice in each year, commencing on the Wednesday following the third Monday in March and on the afternoon of the Thursday following the second Monday in July. No candidate will be admitted to this examination within six months of having passed the First Examination.

The Second Examination for Medical Degrees (Part II.) takes place twice in every year, commencing on the Tuesday following the third Monday in March and on the Tuesday following the first Monday in July. The subjects of the examination are Anatomy, Physiology, and Pharmacology, including Pharmacy and Materia Medica. No candidate shall be admitted to the examination unless he has passed the First Examination for Medical Degrees at least 18 months previously, and has passed Part I. of the Second Examination for Medical Degrees.

The Third or M.D., B.S. Examination.—The M.B., B.S. examination takes place twice in each year, commencing on the fourth Monday in October and on the first Monday in May. No candidate will be admitted to this examination unless he has completed the Second Examination for Medical Degrees, together with a course of study summarised below, nor within three years from the date of passing the Second Examination, Part II. (1) Principles and Practice of Medicine; (2) Clinical Methods and Physical Diagnosis; (3) Insanity (with clinical demonstrations at a recognised Asylum); (4) Therapeutics; (5) Vaccination; (6) Principles and Practice of Surgery; (7) Operative Surgery, Surgical Anatomy, Practical Surgery, and the Administration of Anæsthetics; (8) Diseases of the Eye, Ear, Throat, and Skin; (9) Lectures and Demonstrations on Midwifery and Diseases of Women; (10) Practical Midwifery, the conduct of at least 20 Labours, and practice as a Clinical clerk in Gynaecological work; (11) Pathology and Bacteriology; (12) work of the Post-mortem room; (13) Forensic Medicine; and (14) Hygiene. He must also have attended the Medical and Surgical practice of a recognised hospital for two years and a course of instruction at a recognised Fever Hospital for two months. He must have had clinical instruction and must have held the posts of medical clinical clerk and surgical dresser for periods of six months each. Candidates will be examined in Medicine (including Therapeutics and Mental Diseases), Pathology, Forensic Medicine and Hygiene, Surgery, Midwifery, and Diseases of Women. The subjects may be wifery, and Diseases of Women. The subjects may be divided into two groups—namely: (1) Medicine, Pathology, Forensic Medicine, and Hygiene; and (2) Surgery, Midwifery, and Diseases of Women. These groups may be taken either separately or together. The list of candidates who have passed will be published in two parts—namely, an Honours list and a Pass list. Bachelors of Medicine of this University who graduated in or before May, 1904, may obtain the B.S. degree by passing the Surgical part of the M.B., B.S. examination.

Doctor of Medicine.—The examination for this degree takes place twice in each year, commencing on the first Monday in December and on the first Monday in July. Candidates may present themselves for examination in one of the following branches, namely: (1) Medicine; (2) Pathology; (3) Mental Diseases; (4) Midwifery and Diseases of Women; (5) State Medicine; and (6) Tropical Medicine. Any candidate for the degree of M.D. may transmit to the Registrar a thesis or published work having definite relation to the branch of Medicine in which he is a candidate, and

if the thesis be approved by the examiners the candidate may be exempted from a part or from the whole of the written examination in that subject.

Master in Surgery.—The examination for the degree of Master in Surgery takes place twice in each year and commences on the first Monday in December and on the first Monday in July.

Fees.—Matriculation £2 2s. for each entry. At provincial examinations an additional local fee is charged. First examination for Medical Degrees: £6 6s. for each entry to the entire examination. For re-examination in one subject the fee is £2 2s. In the second examination, Part I. £2 2s., repeated on each subsequent entry; Part II. £3 8s. for the whole examination. Third examination: £10 10s. for each entry to the whole examination. M.D. Examination: £21; for re-examination £10 10s. M.S. Examination: As for M.D.

Full details of the prescribed curricula of study and the names of the recognised Internal and External Schools of the University, can be obtained free on application to the Principal Officer, University of London, South Kensington, S.W.

MEDICAL SCHOOLS OF THE UNIVERSITY OF LONDON.¹

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.—The hospital contains 757 beds, of which 687 are for patients in the hospital at Smithfield and 70 for convalescent patients at Swanley. It receives over 8000 in-patients annually and its out-patients and casualties amount to more than 75,000 annually. Special departments have been organised for Diseases of Women and Children, the Eye, Ear, Larynx, and Skin, as well as for Orthopaedic and Dental Surgery, and for Electro-therapeutics and X Ray work. Surgical operations take place every day at 1.30 p.m. and Surgical Consultations are held on Thursdays at the same hour. Medical Consultations are held on Thursdays at 3.15 p.m. The physicians and surgeons deliver clinical lectures weekly during both the winter and the summer sessions. Clinical Lectures on all special subjects are also given. The visits of the physicians and surgeons are made at 1.30.

Ten house physicians and ten house surgeons are appointed annually, and are provided with rooms and board by the hospital authorities and receive £80 a year as salary. A resident midwifery assistant, an ophthalmic house surgeon, and a house surgeon for diseases of the throat, nose, and ear are appointed every six months, and are provided with rooms and board and receive a salary of £80 a year. Three resident anaesthetists are appointed annually, and receive salaries of £120, £100, and £100 respectively, with rooms. An extern midwifery assistant is appointed every three months, and receives a salary of £80 a year. The clinical clerks, the obstetric clerks, the clerks to the medical out-patients, the dressers to the surgical in-patients and to the out-patients, and the dressers in the special departments are chosen from the students. A residential college is attached to the hospital.

New Buildings.—The new buildings comprise residential quarters for the resident staff, casualty, medical, surgical, and special out-patient departments, casualty wards, dispensary, and clinical lecture theatre. A new chemical laboratory has been added to the Medical School, and a laboratory devoted to instruction in Public Health. A second new block is devoted to Pathology, and contains the post-mortem room as well as extensive laboratories for bacteriology, clinical pathology, pathological histology, and pathological chemistry. The Medical School Buildings include three large lecture theatres, a large dissecting room, a spacious library (containing 13,000 volumes), a well-appointed museum of anatomy, physiology, comparative anatomy, materia medica, botany, and pathological anatomy. The pathological museum is the most complete in the kingdom. There are laboratories for chemistry, physiology, pharmacology, physics, public health, and biology, giving ample accommodation in every department.

Special Classes for the Primary and Final F.R.C.S. are held twice yearly. Instruction in Preliminary Science is given to University of London students in chemistry, biology, and physics throughout the year. Laboratory Instruction for the D.P.H. is provided during the winter and summer sessions.

¹ For Ancillary Metropolitan Medical Schools see p. 447.

The recreation ground of 10 acres is at Winchmore Hill for the use of the members of the Students' Union, which all students are expected to join. The Students' Union contains a large reading and smoking room, a committee and writing room, luncheon and dining hall, and a miniature rifle range.

Scholarships given in aid of Medical Study.—At this school various Scholarships, prizes, &c., are given. For five of the Scholarships and the Exhibition—namely, (a), (b), two Entrance Scholarships of the respective values of £75 and £100; (c) Entrance Scholarship in Arts, £100; (d) Jeaffreson Exhibition, £50; and (e) Shuter Scholarship, £50—a full or University course at St. Bartholomew's Hospital is required. The awards of (a), and (b) are made after examination in selections from the subjects of Chemistry, Physics, Zoology, Botany, Physiology, and Anatomy; (c) and (d) are awarded after examination in Latin, Mathematics, and Greek or French or German; (e) is awarded after competitive examination among Cambridge Graduates in Anatomy and Physiology. The remaining Scholarships and prizes are as follows:—Four Junior Scholarships: (f) No. 1, £30, Anatomy and Physiology; (g) No. 2, £20, Anatomy and Physiology; (h) No. 3, £25, Chemistry, Physics, and Biology; (i) No. 4, £15, Chemistry, Physiology, and Biology; (j) Kirkes Scholarship, £30 and medal, Clinical Chemistry; (k) two Brackenbury Scholarships, £39 each, one in Medicine and one in Surgery; (l) Sir G. Burrows Prize, £10, Pathology; (m) Skynner Prize, 13 guineas, Regional and Morbid Anatomy; (n) Matthews Duncan Medal and Prize, £20, Midwifery and Gynecology; (o) Luther Holden Research Scholarship in Surgery, awarded by election, £105; and (p) Lawrence Research Scholarship and gold medal in Pathology, awarded by election, £115. Information may be obtained on application to the Dean of the Medical School: Dr. T. W. Shore. The Warden of the College is Mr. W. Girling Ball.

CHARING CROSS HOSPITAL.—The Hospital, to which the School is attached, contains 300 beds. Over 3000 cases pass through its wards each year, and some 24,000 out-patients and casualties are treated. There are special departments for Mental Diseases, Midwifery, Diseases of Women, Children, of the Skin, Eye, Ear, Throat, Nose, and Teeth, for Orthopedic Cases, X Ray work, and for Electrical Examination and Treatment.

Appointments.—In the Medical School Demonstratorships and Assistant Demonstratorships are open to students of the School. Medical, Surgical, and Obstetric Registrars to the Hospital are appointed annually. Six House Physicians, six House Surgeons, and two Resident Obstetric Officers are appointed each year after competitive examination.

Primary and Intermediate Studies.—By an agreement with the University of London the School sends its Primary and Intermediate Students to receive their lectures and practical work at King's College, which is situated within four minutes' walk. This arrangement has proved successful.

Final Studies.—These are taken in the school and hospital, where systematic lectures, demonstrations, and tutorial classes are arranged to cover all the subjects necessary for qualifying examinations. Departments are also available for other final subjects of Materia Medica, Toxicology, and Operative Surgery.

An Institute of Pathology with a whole-time staff of scientific workers and fully equipped Laboratories has been established in the School. Students receive their training in Preventive Medicine, Pathology, and Bacteriology here, and are encouraged to undertake Research. Special facilities for Post-graduate Research and Study.

The course in Ophthalmology is given in the Royal Westminster Ophthalmic Hospital. Special lectures and demonstrations are arranged for Post-graduates, including a Museum contains over 4000 specimens, including a reliable collection of over 600 gynecological specimens.

The Cathbert Locker Collection.
The Club.—The special comfort and convenience of students are met by library, reading, and smoking-rooms, refreshment-room, &c. The Club, which is under the control of a Committee of Students, provides needful athletic recreation, and includes the Medical Society.
Women Students.—Women students are accepted by the School and Hospital upon the same terms and conditions as

men, and after qualification are eligible for resident Hospital appointments.

A separate common-room and a female attendant are provided, but beyond this no further distinction is made. This system of co-education, under which men and women are placed on terms of complete equality throughout the whole of the curriculum, has been found to work successfully and to their mutual advantage.

Fees.—An entrance fee of 10 guineas and 8 guineas is payable by full-course and final-course students respectively, and an annual fee of 35 guineas covers all other expenditure, with the exception of 7 guineas for vaccination, dispensing, and fever hospital attendance, which must be taken outside the hospital. Membership of the Students' Club is included in these fees.

Further information may be obtained on application to the Dean, Dr. W. J. Fenton, Medical School, Charing Cross Hospital, London, W.C.

ST. GEORGE'S HOSPITAL.—This hospital has a service of 436 beds, of which 180 are allotted to surgical, 150 to medical cases, and 100 are at the Convalescent Hospital at Wimbledon. One ward is set apart for Diseases Peculiar to Women. Children's beds are placed in all the women's wards. Two wards are placed in all the women's wards. Entrance Scholarships and Endowed Prizes of a total value of £576 are awarded annually; a detailed list is placed below. The entire teaching and arrangements are now devoted to purely clinical subjects, and laboratories have been made with the University of London for students who enter during the first, second, or third year of the curriculum as students of St. George's to carry out the necessary courses of instruction at either University College or King's College. Students then complete their course, without payment of any entrance fee, in a school entirely devoted to Clinical work.

Eight house physicians and eight house surgeons are appointed annually. Special attention is directed to the following paid appointments, among others, which are open to students after they have held house office:—Resident Assistant Physician and Resident Assistant Surgeon, at £350 per annum each; Medical Registrarship at £200; Assistant Curatorship of the Museum at £100; Obstetric Assistantship (Resident) at £50; the post of Resident Anesthetist at £100; the posts (2) of Senior Anesthetists at £50; the posts (2) of Junior Anesthetists, each at £30. The St. George's Hospital Club, with smoking- and luncheon-rooms on the hospital premises, and an athletic ground at Wimbledon, is an amalgamation of the Hunterian Society, the *Gazette*, and the chess, lawn tennis, boxing, hockey, rifle, and golf clubs. Students have the advantage of a library of medical and scientific books which is kept up to date.

Scholarships and Prizes.—At this school two entrance scholarships are given, the money value and the subjects of examination being as follows: (a) and (b) two University Entrance Scholarships, 70 guineas and £50 respectively. Anatomy and Physiology. The others are as follows: (c) William Brown Exhibition, tenable for two years and open to perpetual pupils having registrable qualifications, £135 per annum, Practice of Medicine, Midwifery, and Surgery; (d) William Brown Exhibition, tenable for three years and open to perpetual pupils, £45 per annum, Essay and Original Work; (e) Allingham Scholarship in Surgery for Students qualified not more than three years, £60, Competitive Essay; (f) and (g) two Brackenbury Prizes, one in Medicine and one in Surgery, £30 each, open to students of not more than five years standing; (h) H. C. Johnson Memorial Prize, £15, Practical Anatomy; (i) Pollock Prize, £17, Physiology, Physiological Chemistry, and Histology; (j) Clarke Prize, £5; (k) Thompson Medal, £5, Clinical Reports; (l) Brodie Prize, £7, Clinical Reports; (m) Webb Prize, open to perpetual pupils, £30, Bacteriology; (n) Sir Francis Laking Memorial Prize, £65, open to students having registrable qualifications. Further information may be obtained from the Dean of the Medical School, Mr. R. R. James.

GUY'S HOSPITAL.—This hospital, founded by Thomas Guy in 1721 for the reception of 400 patients, and enlarged through the aid of a large bequest from the late William Hunt, contains at the present time 644 beds. The

school buildings have been rebuilt and now offer very complete accommodation. Within the grounds of the hospital are situated the residential college, with accommodation for 60 students, the students' club, with reading, smoking, luncheon, and dining-rooms, a five court, and swimming bath. The athletic ground and club house is situated at Honor Oak Park, and can be reached in 20 minutes from the hospital.

House physicians, house surgeons, out-patient officers and assistant house surgeons, obstetric residents, ophthalmic house surgeons, clinical assistants, clerks to anaesthetists, surgeons' dressers, medical clinical clerks, post-mortem clerks, extern obstetric attendants, and dressers and clerks in the special departments are appointed from among the students upon the recommendation of the Medical Council according to merit. The establishment of a Venereal Clinic, in accordance with the Scheme of the Local Government Board and London County Council. Lectures and clinical instruction are given, to which Medical Students and Practitioners are admitted without fee.

A Post-graduate Course is held in connexion with the Fellowship of Medicine.

The following new Clinics have been opened: Salomon's Welfare Centre (for Maternity and Children), Tuberculosis Department, and V.D. Department.

Scholarships.—Seven entrance scholarships are awarded annually as follows:—(a) one War Memorial scholarship, providing a free Medical Education for five years—the annual value is about £40, to be awarded either in Arts or in Science, according to the discretion of the Examiners and to the percentage of the marks obtained; (b) one Arts scholarship of £100 for students under 21 years of age, Latin, English, Greek or French or German, Arithmetic, Euclid, and Algebra; (c) one Science scholarship for students under 21 years, £120, Inorganic Chemistry, Physics, and Biology; (d) a Scholarship of £50, open to candidates under 21 years of age, to be awarded either in Arts or in Science, according to the discretion of the Examiners, and to the percentage of the marks obtained; (e) three scholarships, one of £80, one of £75, and one of £35, for students under 25 years of age who have completed the curriculum for, or passed the examination in, Anatomy and Physiology for a medical degree in any University of the British Empire, and have not entered as students in any Metropolitan Medical School. Subjects: Any two of the following: Anatomy, Physiology, Pharmacology, General Pathology, Organic Chemistry.

In agreement with the practice of the Universities, an allowance will be made (1) for Military Service performed by candidates, the term "military service" meaning service in the Naval or Military Forces of His Majesty or of His Majesty's Allies during the war; or (2) in respect of other approved duties in connexion with national defence.

The Dean of the Medical School is Professor T. B. Johnston, from whom further information may be obtained.

UNIVERSITY OF LONDON: KING'S COLLEGE.—The medical department (Faculty of Science, Medical Division) at this College only deals with Preliminary and Intermediate subjects, and instruction in these subjects is given in the College laboratories by university professors and their assistants. The following four hospital schools prepare their students only for the final examinations—viz., King's College Hospital, Westminster Hospital, St. George's Hospital, and Charing Cross Hospital—sending them to King's College for the earlier part of the curriculum. The department is open to both men and women.

Fees.—(a) Entrance fee, £6. (b) Tuition fee of 12 guineas per term, or a composition fee of 35 guineas per annum if paid at the commencement of the session, or a composition fee of 100 guineas for the three years' course if paid at the commencement of the course. For prospectus and further information application should be made to the Dean of the department (Professor E. Barclay-Smith).

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.—The advanced subjects in the curriculum are dealt with at the Medical School attached to King's College Hospital, which is situated at Denmark Hill, S.E. The hospital stands in the midst of a South London population, from which an immense amount of clinical material is forthcoming. During the past year there were 174,626 attendances in the

out-patient and casualty departments. There are 400 beds available for in-patients, and provision will ultimately be made for 600 beds. There are special departments for Bacteriology, Children, Clinical Pathology, Dermatology, Gynaecology and Obstetrics, Laryngology, Massage, Neurology, Odontology, Ophthalmology, Orthopaedics, Otology, Physiotherapy, Psychological Medicine, Radiology, Rhinology, and Urology, each in charge of a specialist and his staff. Clinics are also held in applied pharmacology, cardiology, and medical chemistry. The appointments open to students are those of senior clinical assistant to the special departments; medical, surgical, and obstetric tutorships; resident casualty officers; resident anaesthetist; bacteriologist; clinical pathologist; pathological registrar; and medical, surgical, and obstetric registrarships. Fifteen resident medical and surgical officers are appointed half-yearly.

Scholarships and Prices.—For the first two scholarships in the list here shown a complete course at King's College is required. The money value and subjects of examination are as follows:—(a) Two Warneford Scholarships, tenable for four years, £25 each per annum; (b) Sambrooke Scholarship, £50; (c) Rabbeth Scholarship, £20; (d) Medical Entrance Scholarships, £50, Anatomy and Physiology, and £50, Pathology and Pharmacology, open to students who (1) propose to take a degree at any British University, and have passed their University examination in Biology, Chemistry, and Physics, and who (2) will become students at King's College Hospital from date of entering upon Scholarship; (e) Two Medical Entrance Scholarships one in Arts and one in Science, £50 each, tenable for five years, successful candidates to study at King's College and King's College Hospital; (f) Three Medical Scholarships, £40 for fifth-year students, £20 for third-year students, and £20 for second-year students; (g) Two Sambrooke Registrarships, open to matriculated students who have filled certain appointments in hospital, £50 each; (h) Carter Prize, £15, Botany; (i) Tanner Prize, £10, Obstetrics and Diseases of Women; (j) Todd Prize, £4 4s. and medal, Clinical Medicine; (k) Two Burney Yeo Entrance Scholarships, £80 each, open to students of Oxford and Cambridge on the nomination of the Regius Professors.

Athletics.—The King's College Hospital Clubs and Societies Union was formed in 1908, and consists of the Listerian and Musical Societies, the Students' Common Rooms, and the various athletic and sports clubs. Admirable playing fields, over six acres in extent, have been provided for the use of the students on Dog Kennel Hill, Lordship Lane, S.E., about ten minutes' walk from the hospital. There are also Tennis Courts in the grounds of the Hospital and of "The Planters," the hall of residence for students belonging to the hospital.

Fees.—The composition fee for Hospital work and Final subjects of the curriculum is 93 guineas if paid in one sum, or 95 guineas if paid in two instalments, in addition to the Entrance Fee of 10 guineas. Dean: Dr. H. Willoughby Lyle. Secretary of the Medical School: Mr. S. C. Ranner, King's College Hospital, Denmark Hill, S.E. 5.

LONDON HOSPITAL.—The hospital, with its Medical College and Dental School, is situated in the Mile End-road, E. The hospital contains 933 beds, which are in constant use, and is the only general hospital for East London. During last year 19,699 in-patients and 118,685 out-patients received treatment, while 7783 major operations were performed. 37,006 out-patients attended the special departments for diseases of the Eye, Ear, Nose and Throat, Skin, Teeth, &c., and the Obstetric, Orthopaedic, Venereal, Radiographic, Electro- and Physio-Therapeutical and Inoculation Departments. The hospital presents, therefore, a large field for clinical instruction, and in its Wards and Out-patient Departments exceptional opportunities are afforded for acquiring an extensive and practical experience in all phases of disease.

The Clinical Units in Medicine and Surgery coordinate the teaching of their subjects in the Hospital. The directors and their assistants give practical instruction in Elementary Clinical Medicine and Surgery to all students before they are allowed to enter the Wards and Out-Patient Department. Senior Students are encouraged to work with the units. Special courses of lectures and demonstrations are arranged in Medicine and Surgery and their ancillary subjects. Opportunities for research will be provided under the supervision of the staffs of the units.

Owing to the large number of patients more appointments are open to students before and after qualification than at any other hospital. Holders of resident appointments have free board. Special classes are held for the examinations of the University of London, for the Fellowship of the Royal College of Surgeons, and for other higher examinations. Special entries for medical and surgical practice can be made. A residential Hostel on hospital grounds is provided for the convenience of students. The Clubs Union Athletic Ground of over 13 acres is within easy reach of the hospital.

Scholarships and Prizes.—At this school the successful candidates for the first items in the list here shown must enter for the course subsequent to passing the first examination in Biology, Chemistry, and Physics. The value and the subjects of examination are as follows:—Price Scholarship, £100, and one Entrance Scholarship of £50, subjects of First Medical Examination at the University of London; Epsom College Scholarship, free education, subjects of First Medical Examination as above; Price Scholarship, open to students of Oxford and Cambridge Universities, £52 10s., Human Anatomy and Physiology; Buxton Scholarship, £31 10s., subjects of Anatomy and Physiology; three Scholarships for Clinical Work, £20 each, Medicine, Surgery, and Obstetrics and Gynecology; Sutton Prize, £20, Pathology; Duckworth Nelson Prize, biennial, £10, Practical Medicine and Surgery; Letheby Prizes (2), £25, Chemistry and Chemical Pathology; eight Dressers' Prizes, amounting to £40, zeal, efficiency, and knowledge of Elementary Clinical and Minor Surgery; Hutchinson Prize, triennial, £40, Clinical Surgery; two Practical Anatomy Prizes, £6 and £4 respectively; Andrew Clark Prize, biennial, £26, Clinical Medicine and Pathology; James Anderson Prizes, £9, Elementary Clinical Medicine; Forensic Medicine; Arnold Thompson Prize, £15, Medical and Surgical Diseases of Children; and Little Prize, triennial, £120.

Medical Research Funds.—Research Funds of over £26,000, including the Eliza Ann Alston Endowment Fund for Medical Research, provide valuable scholarships for men wishing to undertake research or desirous of preparing Theses for University degrees.

Dean: Professor William Wright, London Hospital Medical College, E.

ST. MARY'S HOSPITAL.—305 beds. The number of in-patients treated during 1919 was 3591. The number of out-patients was 15,833 with 21,802 casualty cases, a total of 37,635. The situation of the hospital and Medical School, in the centre of the residential districts of Paddington, Bayswater, and North Kensington renders it exceptionally convenient for students' rooms, a register of which is kept by the authorities for the use of students.

Laboratories, &c.—The Medical School provides for the entire curriculum. Special laboratories are in use for Biology, Chemistry, and Physics, a series of lecture theatres and laboratories for Anatomy and Physiology, and a spacious and well-lighted dissecting-room. The Pathological Department is under the direction of Dr. E. H. Kettle, and a block of consulting-rooms and laboratories in the New Wing of the Hospital has been equipped for the department of Therapeutic Inoculation.

Appointments.—All clinical appointments in the hospital are free to students of the Medical School and the resident medical officers are chosen by competitive examination. Six house physicians, six house surgeons, four obstetric officers are appointed in each year and receive board and lodging in the hospital. Two resident anaesthetists are appointed in each year and receive a salary at the rate of £100 per annum, with board and lodging. Four casualty house surgeons are appointed in each year upon the same conditions. Several assistants in the department of Therapeutic Inoculation are appointed annually at salaries of £100 per annum and upwards. In addition to the above, the senior appointments, medical, surgical, and obstetric registrar, casualty physician, demonstrator of anatomy, physiology, and biology, are made annually.

Clinical Facilities.—The clinical teaching has recently been greatly extended by the introduction of Clinical Units in Medicine and Surgery, and by the affiliation, for teaching purposes, of the Paddington Infirmary, Paddington Green Children's Hospital, and Maida Vale Hospital for Nervous Diseases, bringing up the total number of beds available for teaching purposes to more than 1600.

Clubs, &c.—The amalgamated clubs include all the various athletic clubs, as well as the Medical Society, &c. There is a students' club on the Hospital premises, the membership of which is included in the amalgamated clubs. A new athletic ground (10 acres) has been obtained at Wembley and is now in use.

Special Tuition.—Special tuition is provided for the Intermediate and Final Examinations of the Universities of Oxford, Cambridge, and London, and for the Primary and Final F.R.C.S.

The composition fee for full students is £200 if paid in one sum, or £210 if paid in four instalments. University students who have completed their examinations in Anatomy and Physiology are admitted on payment of a composition fee of 90 guineas paid in one sum or by payment of two annual instalments of 50 guineas and 45 guineas respectively. A system of annual fees is also in force as an alternative to composition fees. Separate courses of lectures, laboratory work, or hospital practice may be taken.

Scholarships and Prizes.—The money value and subjects of examination of these are as follows: (a) and (b) Entrance Scholarships in Natural Science, £100 and £50 respectively, awarded by competition in September; (c) the Frederic John Palmer Scholarship in Natural Science, open to members University Scholarship in Natural Science, £52 10s.; (d) University of Oxford or Cambridge University, open to members of any Scholarship in Natural Science, £52 10s.; (e) Epsom Scholarship, awarded by nomination, £52 10s.; (f) Gold Medal, £20, an Essay on Some Special Point in Clinical Medicine; (g) Meadows Prize, awarded in alternate years, £8, Obstetrics; (h) Wallace Memorial Prize and Medal, for work in Vaccine Therapy, £5 5s.; (j) David Lees Prize in Clinical Medicine, £8. (k) Sir William Broadbent Prize in Clinical Medicine, £8.

Dean: Sir John Broadbent, M.D. Secretary: Mr. B. E. Matthews, St. Mary's Hospital Medical School, Paddington, W.

MIDDLESEX HOSPITAL.—The Hospital contains over 450 beds, with special wards for Cancer, Maternity, and Gynecological and Ophthalmological cases, and for Diseases of Children. The Cancer Charity, containing 92 beds and Special Investigation Laboratories, offers unrivalled opportunities for the study of Cancer, both in its clinical and pathological aspects.

In the Electro-Therapeutic Department (under the direction of the Professor of Radiology) students obtain instruction in the Treatment of Lupus and Cancer by the X Ray method of treatment. An Electrocardiograph Department is also established.

The Medical School, which now includes the Bland-Sutton Institute of Pathology and the Cancer Research Laboratories is fully equipped for the theoretical and practical teaching of all the subjects of the medical curriculum, and for the Diplomas in Public Health, for which two courses are held yearly, commencing in April and October. Ample laboratory and class-room accommodation is provided. The teaching staff includes 6 Professors, 29 recognised Teachers, 6 Demonstrators, 3 Tutors.

The Bland-Sutton Institute of Pathology is completely equipped for routine investigation, teaching and research work, and contains a new lecture theatre and large pathological, bacteriological, and clinical laboratories, also smaller laboratories for individual research work. A well-equipped Anatomical and Pathological Museum and Reference Library offer every facility for study.

Other features of interest are: The institution of a course in Medical Radiology and Electrology, under the direction of the Professors of Radiology and Physics. The D.P.H. course, under the direction of Dr. Charles Porter, M.O.H., St. Marylebone, will commence on Oct. 1st. Primary F.R.C.S. class will resume on Sept. 1st. Final F.R.C.S. class begins on Sept. 1st.

Special classes are held to prepare students for the Intermediate examinations of the Universities. There is a Residential College in the hospital for students.

Hospital Appointments.—All appointments are made without fee of any kind, and the following are appointed at intervals annually: six house physicians, eight house surgeons, two obstetric and gynecological house surgeons, two casualty medical officers, two casualty surgical officers, one resident anaesthetist, and two resident officers to the

special departments. The medical and surgical casualty officers are appointed twice a year. The medical, surgical, and obstetric and gynaecological registrars are appointed as vacancies arise.

Non-resident qualified clinical assistants are appointed to assist in the various out-patient departments. Clinical clerks and surgical dressers are also appointed in every department.

Scholarships, Prizes, &c.—(a), (b), and (c) Three Entrance Scholarships, value £100, £50, and £25, and (d) a University Scholarship, value £50, are awarded annually in September. The successful candidates are required to become general students of the school. (e) A Freer Lucas Scholarship for Foundationers or Council Exhibitioners of Epsom College, is awarded annually on the nomination of the Headmaster. There are also, (f) and (g), two Brodrip Scholarships, value £60 and £40 respectively; (h) the Lyell Gold Medal and Scholarship, value £55 5s.; (i) the John Murray Medal and Scholarship, value £25 (awarded every third year); (k) the Freeman Scholarship, value £30; (l) the Hetley Clinical Prize, value £25; (m) the Leopold Hudson Prize, value 11 guineas; and (n) the Second Year's Exhibition, value 10 guineas. There are also numerous class prize examinations.

In connexion with the Cancer Research Department the following Scholarships are awarded:—Richard Hollins Research Scholarship, value £100; Walter Emden Scholarship, value £100; and a Cancer Research Scholarship, value £60.

Fees.—The fees are arranged on a basis of an annual payment of £42 for the five years of the curriculum. After five years, if the student is not qualified, the annual fee is £21.

The Amalgamated Students' Club includes the following: the Medical Society, the Common Room Society, the cricket club, the football clubs, the athletic club, the rowing club, the musical society, the chess club, the lawn tennis club, and the hockey club. A subscription to the Amalgamated Students' Club is payable by all General and Dental students. Full particulars on application to the Dean, Middlesex Hospital Medical School, W. 1.

ST. THOMAS'S HOSPITAL.—This hospital received its present charter from King Edward VI., but as a monastic institution was in existence prior to the year 1207. The building occupies a unique position by the river, opposite the Houses of Parliament, and contains 632 beds. The in-patients last year numbered 7687, whilst the number of attendances as out-patients, including the casualty and light departments, was 331,278. There are special departments for the treatment of women, children, the eye, ear, nose and throat, skin, and teeth. The Tuberculosis Department forms a part of the Lambeth scheme for treatment of patients and for instruction. The Venereal Department has been established as part of the London County Council scheme. Departments for light treatment, X rays, and the Physio-therapeutic Department are also special features. A speech clinic has been inaugurated in connexion with the Children's Department. Exceptional facilities are offered in the hospital laboratories for the study of general pathology, clinical pathology, chemical pathology, cardiology, and of treatment by serums and vaccines. Surgical operations take place in the main theatres every day except Saturdays at 2 P.M. Clinical teaching in the wards, out-patients' and special departments, is available every day of the week. Clinical lectures are delivered every Wednesday during the sessions. All appointments in the hospital are open to students without extra-fee. Clinical assistants to all the special departments are appointed every three months. A resident assistant physician and a resident assistant surgeon, at a salary of £200 each, are appointed biennially; also four hospital registrars (medical, surgical, obstetric, and ophthalmic), the two former receive a salary of £250 and the latter £50. Three assistants in the clinical laboratory are paid, one at the rate of £300, and two at £250 each, per annum. There is also an assistant in the laboratory for chemical pathology, paid at a salary of £200. Appointments open to students before qualification: Clinical clerks and dressers for in- and out-patients are selected from students who have completed their third year's work. Every student acts as clerk in the post-mortem room and in one of the pathological laboratories, takes his turn on maternity duty under proper supervision

in the maternity ward, thus obviating any necessity for seeking instruction elsewhere. Students are instructed in the administration of anaesthetics by one of the hospital anaesthetists. The Students' Club comprises a spacious restaurant and smoking and reading room. There is no occasion for students to leave the hospital buildings during working hours. The curriculum is arranged to meet the requirements of all the Examining Bodies. Special classes are held for the examinations at the University of London and for the First and Final Fellowship Examinations of the Royal College of Surgeons of England. Tutorial classes in all subjects precede the various examinations. The hospital is easily accessible from all parts.

Fees.—The annual fees are: for first year (preliminary subjects) £25, and for each subsequent year £50. These fees cover all tutorial classes, but do not include instruction in infectious fevers, pharmacy, and vaccination. Qualified practitioners are permitted to attend the hospital practice on terms which may be ascertained from the medical secretary.

Scholarships and Prizes.—At this school there are five Entrance Scholarships—namely, two in Arts, equivalent to the tuition fees for the first medical examination; two in Natural Science, of the value of £150 and £60 respectively; and the University Scholarship of £100 in Anatomy, Physiology, and Chemistry. The value of all entrance scholarships must be taken out in tuition fees. The money value and subjects of examination of the remainder are as follows: (a) William Tite Scholarship for second-year students, £25; (b) and (c) Musgrove Scholarship or (alternately) Peacock Scholarship, each for third-year students and tenable for two years, £35 each; (d) Cheselden Medal, Surgery and Anatomy; (e) Mead Medal, Medicine, Pathology, and Hygiene; (f) Toller Prize, Medicine, Pathology, and Hygiene; (g) Bristowe Medal, Pathology and Morbid Anatomy; (h) Solly Medal and Prize, biennially, Surgical Reports; (i) Treasurer's Gold Medal for the most distinguished fifth-year student; (j) Wainwright Prize, Medicine, Pathology, and Hygiene; (k) Madden Prize, Pathology; (l) Beanes Scholarship, £50 biennially, Surgery and Surgical Pathology; (m) Sutton Sam's Prize, biennially, reports of cases in Obstetric Medicine; (n) Grainger Testimonial Prize, £31 10s. Anatomy and Physiology; (o) Louis Jenner Research Scholarship, tenable for two years, £60 annually, Pathology; and (p) Research Scholarship, tenable for two years, £200 per annum.

The Dean of the Medical School is Sir Cuthbert S. Wallace, the Sub-Dean Dr. O. R. Box, and the Medical Secretary Dr. A. Elliot, from whom any further information may be obtained.

UNIVERSITY OF LONDON, UNIVERSITY COLLEGE.—University College has been constituted a University centre for the teaching of medical sciences. The College Faculty of Medical Sciences comprises the Departments of Physics, Chemistry, Botany, and Zoology (the Preliminary Medical Sciences); also the Departments of Anatomy, Physiology, and Pharmacology (the Intermediate Medical Sciences), and the Department of Hygiene and Public Health (Post-graduate Study).

Faculty of Medical Sciences.—Composition fees.—For the courses required by the University of London. 1. For the First Medical Course, 35 guineas, entitling to one attendance and to the privileges of the Union Society for one session. 2. For the Second Medical (Intermediate) Course 80 guineas, payable in two instalments of 40 guineas each. This fee entitles to attendance at Anatomy and Physiology during three years and to one attendance at Organic and Applied Chemistry, Pharmacology, and Materia Medica, and to the privileges of the Union Society for two sessions.

For the medical education required by the Examining Board in England and the Society of Apothecaries. First examination, Parts I., II., III., 29 guineas, entitling to attendance for the First and Second Terms and to the privileges of the Union Society for one session; 35 guineas, entitling to attendance throughout the session and to the privileges of the Union Society for one session. First Examination, Part IV., and second examination, 80 guineas, payable in two instalments of 40 guineas each. This fee entitles to attendance during three years in all subjects

but Practical Pharmacy and to the privileges of the Union Society for two sessions.

Scholarships and Prizes.—The first three items on the present list require a complete intermediate course at University College. The money value and subjects at examinations are as follows: (a) The Bucknill Scholarship, 135 guineas; (b) and (c) two Entrance Exhibitions, 55 guineas each; Chemistry, Physics, Botany, and Zoology; and Memorial Prize, £15 biennially; Anatomy, Physiology, and Chemistry; (c) Schäfer Prize in Physiology, £18 triennially; (f) Sharpey Physiological Scholarship, £105. Biological Sciences; (g) Morris Bursary for sons of deceased professional men, by nomination, tenable for two years, £16 a year; and (h) five Gold and five Silver Medals awarded annually in various departments.

Women students are admitted.

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awards, must give at least 28 days' notice to Professor
Howden, Registrar, College of Medicine, Newcastle-upon-
Tyne. In the case of the M.D. (essay) examination candi-
dates must send in their essays before the 1st of April.
In connexion with this University Four Scholarships and prizes are
awarded annually. The following are the names of the
holders of the scholarships for the year 1904-5:—
1. The *James Watt* Scholarship, £100 per annum, for a student
of the Faculty of Medicine, who has obtained a first class
honours in the M.B. (essay) examination, and who is a
resident of the University of Newcastle-upon-Tyne.
2. The *James Watt* Scholarship, £100 per annum, for a student
of the Faculty of Medicine, who has obtained a first class
honours in the M.B. (essay) examination, and who is a
resident of the University of Newcastle-upon-Tyne.
3. The *James Watt* Scholarship, £100 per annum, for a student
of the Faculty of Medicine, who has obtained a first class
honours in the M.B. (essay) examination, and who is a
resident of the University of Newcastle-upon-Tyne.
4. The *James Watt* Scholarship, £100 per annum, for a student
of the Faculty of Medicine, who has obtained a first class
honours in the M.B. (essay) examination, and who is a
resident of the University of Newcastle-upon-Tyne.
5. The *James Watt* Scholarship, £100 per annum, for a student
of the Faculty of Medicine, who has obtained a first class
honours in the M.B. (essay) examination, and who is a
resident of the University of Newcastle-upon-Tyne.
6. The *James Watt* Scholarship, £100 per annum, for a student
of the Faculty of Medicine, who has obtained a first class
honours in the M.B. (essay) examination, and who is a
resident of the University of Newcastle-upon-Tyne.
7. The *James Watt* Scholarship, £100 per annum, for a student
of the Faculty of Medicine, who has obtained a first class
honours in the M.B. (essay) examination, and who is a
resident of the University of Newcastle-upon-Tyne.
8. The *James Watt* Scholarship, £100 per annum, for a student
of the Faculty of Medicine, who has obtained a first class
honours in the M.B. (essay) examination, and who is a
resident of the University of Newcastle-upon-Tyne.
9. The *James Watt* Scholarship, £100 per annum, for a student
of the Faculty of Medicine, who has obtained a first class
honours in the M.B. (essay) examination, and who is a
resident of the University of Newcastle-upon-Tyne.
10. The *James Watt* Scholarship, £100 per annum, for a student
of the Faculty of Medicine, who has obtained a first class
honours in the M.B. (essay) examination, and who is a
resident of the University of Newcastle-upon-Tyne.

Candidates must give notice to the Registrar, College of Medicine, London, in the case of the M.D. (essay) examination before the 1st of April. In the case of their essays before the 1st of April. University of Durham College of Medicine. —In connexion with this dates must send in their essays before the 1st of April. Four Scholarships and Prizes are awarded:—(a), (b), (c), and (d). The following Scholarships and prizes are awarded:—(a), (b), (c), and (d). Four Scholarships of £25 a year each, tenable for four years; the examination will be the September Matriculation Examination. Candidates must take English, Latin, Arithmetic, Euclid, Algebra, Geography, English History, and one or two of the three languages—French, Greek, German. (See College Calendar for special books.) Open to candidates desirous of being admitted as Medical students. The successful candidates must take out their fees at the University of Durham College of Medicine. (c) Pears Scholarship of £50 per annum for four years; Matriculation

two, of the three languages—Latin, French, and German. Candidates must take out their calendar of being admitted as Medical students. The successful candidates must take out their entire curriculum at the University of Durham College of Medicine, Newcastle-upon-Tyne. (c) Pears Scholarship of £50 a year (when vacant), tenable for three years; Matriculation Examination. At the College of Medicine are: (f) Dickinson Scholarship, interest on £400 and gold medal; examination in Medicine, Surgery, Midwifery, and Pathology. Open to full students of the College of Medicine who have passed the third M.B. Examination. (g) Tulloch Anatomy, Biology, Chemistry, and Physics. (h) Charlton Memorial Scholarship, interest on £700; examination in Medicine. Open to full students of the College of Medicine. (i) Gibb Scholarship, Principles and Practice of Medicine. (j) Gibbs Scholarship, interest on £500; awarded annually as a Scholarship in Pathology to full student who passes the best examination in that subject. No student is eligible after completion of his curriculum. (k) Luke Armstrong Memorial Scholarship, interest on £680; Original Essay in Hygiene and candidates open to all Graduates in Medicine or Hygiene at the University for those degrees who have spent six months at the University and whose age does not exceed 30 years. (l) Stephen Scott Scholarship, interest on £1090; Original Essay on any Surgical subject. Open to any Graduate in Medicine or Surgery of the University or any student of the College of Medicine. Student's age must not exceed 30 years. All Graduates in Surgery, of the value of £200.

whose age does not exceed 30 years.
Scholarship, interest on £1000; open to any graduate of the College
of Medicine. Student's age must not exceed 30 years.
(m) Health Scholarship in Surgery, of the value of £200.
Awarded every second year. All Graduates in Medicine or
Surgery of the University are eligible. (£1800 to the
Scholarships.) (2). The interest on the highest marks in the
Final M.B. Examinations held in March and June
respectively. (n) Gibson Prize, interest on £250 stock;
examination in subject of Midwifery and Diseases of Women
and Children. Open to students who have attended one
course of lectures on Midwifery and Gynecology.
(o) Outerson-Wood Prize, interest on £250. In Psycho-
logical Medicine. (p) Turnbull Prize and Medal; ex-
amination in Surface Anatomy.—At the Royal Infirmary
end of their second winter session.—At the Royal Infirmary
is (q) Gosder Memorial Scholarship, interest on £325;
awarded annually to student who most distinguishes
himself in Clinical Medicine and Clinical Surgery at the
Royal Infirmary. For further information apply to Pro-
fessor R. Hamden, Registrar of the College.

OF MEDICINE, Newcastle-upon-Tyne.—
The Royal Victoria Infirmary

THE COLLEGE OF MEDICINE, Newcastle-upon-Tyne.—
Clinical instruction is given at the Royal Victoria Infirmary,
containing about 800 beds. In it adequate special subjects, in
addition to the study of the various special subjects, in
the ordinary clinical work. Post-graduate classes

BIRMINGHAM.

NEWCASTLE-UPON-TYNE ROYAL VICTORIA INFIRMARY.

The Infirmary was founded in 1751, but has been entirely rebuilt, the new hospital being opened by His late Majesty King Edward VII. in 1906. The number of beds is 550. The number of in-patients annually is 9500 and of out-patients 70,000. The medical students of the University of Durham attend the practice of this hospital. Clinical Lectures are delivered by the Physicians and Surgeons weekly and ward demonstrations are given daily. Tutorial classes are held by the Assistant Physicians, Assistant Surgeons, and Surgical Registrars weekly, and demonstrations are given in the several out-patient departments daily. Pathological demonstrations are given by the Pathologist daily or as opportunity occurs, and in the new buildings nothing has been spared in perfecting scientific equipment. In addition to medical and surgical special departments are fully equipped for teaching students: Ophthalmic, Throat, Nose, and Ear, Skin, Gynecological, and Electrical. The hospital building contains the following laboratories: 1. Special Pathological Laboratory, attached to the post-mortem rooms. 2. Bacteriological Laboratory, in which all clinical bacteriological investigations are carried out—opsonic and serums, &c. 3. There is in addition a Clinical Laboratory attached to each ward and to the out-patient department. There are five operating theatres in use in the hospital. The surgical practice is special good. The session opens on April 17th and Oct. 2nd each year. Applications for detailed information should be made to the Dean, Dr. Horsley Drummond, at the hospital. There are other institutions in addition to the Royal Victoria Infirmary at which the student of medicine of the University of Durham can receive clinical instruction. Practical Midwifery can be studied at the New Lying-in Hospital. Instruction is given in Psychological Medicine in the Sunderland Mental Hospital, &c. A special course of instruction is given in the Hospital for Infectious Diseases by the City Officer of Health. Ophthalmology is further taught at the Northumbrian, Durham, and Newcastle Infirmary for Diseases of the Eye. Secretary: Mr. Richard Smith, 61, Westgate, Newcastle-on-Tyne.

CITY OF BIRMINGHAM.

UNIVERSITY OF BIRMINGHAM.

UNIVERSITY OF BIRMINGHAM.

The University of Birmingham grants the degrees of M.B., Ch.B., M.D., Ch.M., and Ph.D. (for Research Study), and also a degree and a diploma in Public Health. The course for the Bachelors' degrees extends over five years from the date of commencement of professional study. As a rule the first four of these years must be spent in the University, but the Senate has power of recognising attendance at another University as part of the attendance qualifying for these degrees and of recognising examinations passed at such other Universities as exempting from the examinations in Chemistry, Physics, and Elementary Biology. In the case of such students at least three years must be spent in attendance upon classes at the University. The fifth year may be spent at any other medical school recognised by the University.

Students who have passed the Matriculation Examination in the University may be exempted from the Matriculation Examination in the University.

The student must have passed the Matriculation Examination of the Joint Board or an examination accepted in lieu thereof. All communications respecting the Matriculation Examination, and examinations respecting the Matriculation Examination, must be sent to the Secretary to the Board, Joint Matriculation Board, 315, Oxford-road, Manchester. First Examination.—Chemistry and Physics and Physiology. Third Examination.—Anatomy and Bacteriology, Materia Medica, and General Pathology and Bacteriology. (At the end of the fourth year).—Forensic Medicine, Toxicology, Public Health, Therapeutics, and Special Pathology. Two years' hospital work must have been accomplished. Final Examination.—Medicine, Surgery, Midwifery, Diseases of Women, Mental Diseases, and Ophthalmology. Attendance at a general hospital for a year after the passing of the fourth examination will be required, also attendance at a fever hospital three months, maternity hospital one month, and lunatic asylum three months. Vaccination instruction must be taken out and courses of Ophthalmology, Medical and Surgical Anatomy, and Operative Surgery.

Degrees of Doctor of Medicine and Master of Surgery.—At the end of one year from the date of having passed the final M.B., Ch.B. examination the candidate will be eligible to present himself for the higher degrees of either Doctor of Medicine or Master of Surgery or both. Candidates have to present a thesis on some subject embraced in the medical curriculum, and pass a general examination in Principles and Practice of Medicine for the M.D., and one in Principles and Practice of Surgery, including operations on the cadaver for the M.Ch. A thesis of exceptional merit may exempt from any part of these examinations.

Degree of Ph.D.—The Degree of Doctor of Philosophy is conferred upon candidates who possess a medical degree of a British, Colonial, or other university approved of by the Senate of the University, and who have been engaged, to the satisfaction of the Medical Faculty, in advanced study and research for a period of not less than two years, either in a laboratory of the University or in one or more of the hospitals associated with the University. After the first year of the course candidates may carry on research elsewhere, under approved conditions, and on completing the course present an original thesis on the subject and submit themselves for oral and possibly written examination.

Fees.—Matriculation, £2; First Examination, £2; Second Examination, £2; Third Examination, £2; Fourth Examination, £2; Final Examination, £8; M.D. or Ch.M., £10.

At the University of Birmingham the following Scholarships are awarded:—(a) Myers Travelling Studentship of £150, tenable for one year, awarded by vote of committee to M.B., Ch.B. Birm., B.Sc. candidates, tenable at some University or Hospital not in Great Britain or Ireland; (b) Ingleby Scholarship of £10, awarded to the candidate at Final Examination obtaining highest "first-class" marks in the subjects of Midwifery and Diseases of Women; (c) Sydenham Scholarship of £42, tenable for three years, award of Council to orphan sons of medical practitioners; (d) Sands Cox Scholarship of £42, tenable for three years, awarded to the candidate, not being more than 19 years of age, taking the highest marks at the July Matriculation; (e) Dental Scholarship of £37 10s., Open Competitive Examination in subjects learned during apprenticeship; (f), (g), (h), and (i) Four Queen's Scholarships of £10 10s. each. In the Second and Fourth Examinations the Scholarship is awarded respectively to the student taking the first place and obtaining "first-class" marks. In the Third Examination the Scholarship is awarded to the student obtaining the highest "first-class" marks in Pathology and Bacteriology, provided that such student passes at the same examination in the subjects of Materia Medica and Practical Pharmacy. In the Final Examination the Scholarship is awarded to the candidate taking the first place in the examination—that is, obtaining the greatest aggregate number of marks—provided that in each of the subjects of Medicine, Surgery, and Midwifery he gains not less than 60 per cent. of the total available marks; (j) George Henry Marshall Scholarship of £10, awarded annually, for the encouragement of Research Work in Ophthalmology; and (k) Russell Memorial Prize, a prize of books, value about £2, awarded annually to the student who, not being of more than six years' standing as a student of the School of Medicine of the University, shall pass the best examination in the subject of Nervous Diseases.

Clinical Instruction.—The medical students of the University receive their clinical instruction by attending the amalgamated practice of the General Hospital and the Queen's Hospital, under the direction of the University Clinical Board. The hospitals possess more than 500 beds, treating annually over 8000 in-patients and 100,000 out-patients. The curriculum is adapted in the first place to the University of Birmingham, but it also meets the requirements of the examinations of other licensing bodies. At the General Hospital there are open to the students the following appointments: A surgical registrar, £200 per annum; a resident medical officer, elected annually (£155); a resident surgical officer, elected annually and eligible for re-election for three years (£180); a resident pathologist, elected for six months (£100); three house physicians and four house surgeons hold office for six months, receiving board, residence, and salaries at the rate of £100 a year; two house surgeons to the gynaecological, ophthalmic, and aural departments are elected every six months, receiving board,

residence, and a salary of £100 a year; two assistant house surgeons are elected every three months, receiving board, residence, and salaries at the rate of £40 a year; a resident medical officer at the Jaffray Hospital, who is elected annually but is eligible for re-election, and who receives £150 a year; and a resident medical assistant at this hospital, who is not necessarily qualified, is provided with board and residence, and holds office for three months. At the Queen's Hospital there are open to the student the following appointments: Three house physicians, three house surgeons, and one obstetric and ophthalmic house surgeon, who hold office for six months and have salaries at the rate of £90 a year. Thirty-eight other appointments of varying value are at the City Workhouse and Workhouse Infirmary, at the Birmingham General and Branch Dispensaries, at the Birmingham Lunatic Asylums, at the City Fever Hospitals, at the Children's Hospital, at the Birmingham and Midland Eye Hospital, at the Orthopedic and Spinal Hospital, at the Maternity Hospital, and at the Ear and Throat Hospital.

Post-graduate Courses.—A "Lectureship in Psychotherapy" has recently been established in the University.

A course of lectures on Venereal Diseases was held during the last Winter Session for practitioners and students, and courses of Clinical Instruction in Physiology, Medicine, Children's Diseases, Radiology, and Electrical Treatment are given.

BIRMINGHAM GENERAL HOSPITAL.—374 beds are in daily use, 6440 in-patients per annum. Special wards for children, gynaecological, septic and infectious cases; special beds for eye, ear, and skin cases. About 50,000 out-patients per annum. Laboratories for bacteriology and morbid histology. Separate rooms adjoin the medical and surgical wards for clinical pathology. Five operating theatres (one for out-patients), all designed and fitted on the most modern lines. In addition to clinical teaching given in the wards and out-patient department by the honorary staff, medical and surgical tutorial classes are held for senior and junior students. Clinical instruction in all the special departments. The Jaffray Branch Hospital contains 56 beds.

QUEEN'S HOSPITAL (Beds 223).—Similar arrangements for clinical teaching are made here, and the material also is excellent. Ward and tutorial classes and post-graduate courses are regularly conducted by the staff, there are daily clinics in the out-patient department, while teaching duties are definitely assigned to the house physicians and house surgeons. There are also special departments for gynaecology and ophthalmology, radiography, bacteriology, massage, electricity, whirlpool baths, &c.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street, Birmingham.—This hospital possesses 120 beds, and there is an average daily attendance of out-patients of 250. Students attending for a period of three months will be granted certificates which will qualify for the University and Conjoint Board examinations. Post-graduate courses are available on various subjects when a sufficient number of graduates are present. A limited number of Non-Resident Clinical Assistants posts are available to qualified practitioners, particulars of which can be had on application to the General Superintendent.

UNIVERSITY OF LIVERPOOL.

The degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), and Master of Hygiene (M.H.).

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates for the degrees of Bachelor of Medicine and of Surgery must have attained the age of 21 years on the day of graduation. At least two of the five years of medical study must have been passed in the University, and one year at least must have been passed in the University subsequently to the date of passing the First Examination. The other three years may be passed at any college or medical school recognised for this purpose by the University. Candidates must pass three examinations entitled respectively: the First Examination, the Second Examination, and the Final Examination. The fee is £5 for each examination. The subjects of the First Examination are: (1) Chemistry, Inorganic, Organic, and Physical; (2) Biology (Zoology and Botany); and (3) Physics. The examination is divided into two parts—namely, (1) Chemistry and Physics,

degrees. Candidates for the degree of Doctor of Medicine are required to present a dissertation and, if the dissertation be accepted, may be required to pass an examination.

The first term commences on Oct. 1st. Pro-pectus, &c., can be obtained from the Dean of the Medical School.

Post-graduate work.—Practitioners wishing to attend Infirmary practice during short periods may do so on terms which may be obtained from the Clinical Sub-Dean.

Clinical Instruction.—THE LEEDS GENERAL INFIRMARY, in connexion with this medical faculty, has accommodation for 620 in-patients, including 88 beds at branch hospitals in the country. During the last year 9495 in-patients and 37,746 new out-patients were treated. Clinical teaching takes place daily in the wards, and Clinical lectures are given in Medicine and Surgery by the Physicians and Surgeons. There are Medical, Surgical, Ophthalmic, Aural, Electro-therapeutic, and Radiographic Departments, in each of which special instruction is imparted to students. A Gynecological and Extern Obstetric Department, together with Laryngeal and Skin Clinics, are in operation. Several valuable prizes are given at the end of each session. Numerous appointments at the Infirmary are annually open to students after qualification.

UNIVERSITY OF SHEFFIELD.

The Degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.). The courses and degrees in the Faculty of Medicine are open to men and women alike. Candidates must matriculate in the University or pass such other examination as may be recognised for this purpose by the University and sanctioned by the Joint Matriculation Board.

Degrees of Bachelor of Medicine and Bachelor of Surgery.—A candidate must have attained the age of 21 years on the day of graduation and pursue the courses of study required by the University regulations during a period of not less than five years subsequently to the date of his matriculation, three of such years at least having been passed in the University, one at least being subsequent to the passing of the First Examination.

The First Examination.—The subjects of the examination are Chemistry, Physics, and Biology. The Intermediate B.Sc. Examination in these subjects will, on payment of the required additional fee, be accepted instead of this examination. Candidates must, after matriculation and registration as medical students, have attended courses of instruction (lectures and laboratory work) in chemistry, physics, and biology for one year each.

The Second Examination.—The subjects of the examination are Anatomy and Physiology.

The Third Examination.—The subjects of the examination are Pathology and Pharmacology. A candidate entering for the first, second, or third examination, who shall pass creditably in one subject of either examination and obtain a certain minimum of marks in the other, may enter for such other subject separately in a subsequent examination. Candidates must have completed the fourth year of professional study.

The Final Examination.—The subjects of the examination are Medicine (including Forensic Medicine, Public Health, Mental Diseases, and Diseases of Children); Surgery; and Obstetrics (including Gynecology). Candidates must satisfy the examiners in all subjects at the same examination. Candidates must have completed the fifth year of professional study.

Degree of Doctor of Medicine.—Candidates for the degree of Doctor of Medicine must have passed the degrees of M.B., Ch.B. at least once, and present a thesis embodying original observations approved by the professor of medical examination in the Principles and Practice of Medicine.

Degree of Master of Surgery.—Candidates for the M.B., Ch.B. at least once must have held for a year a surgical appointment in a hospital. The subjects of examination are Systemic Surgery, Surgical Anatomy, and Surgery.

Scholarships.—At this University there are several scholarships of £100.

holders of which can take the courses in the Faculty of Medicine, there are 8 scholarships and a Town Trust Fellowship. Full particulars as to curriculum, scholarships, &c., may be had on application to the Registrar or to the Dean of the Medical Faculty.

The Medical School.—The new buildings of the University opened in 1905 are situated at the west end of the city, adjoining Weston Park, and the Medical Department occupies the entire north wing of the University quadrangle. The various athletic and other students' societies are under the management of a Students' Representative Council, elected annually. There are large and comfortable common rooms both for men and women students. A refectory is open daily at the University where students may obtain refreshments, lunch, dinner, &c., at extremely moderate prices. The University journal, *Florëamus*, edited by a committee of staff and students, is published each term. The University Hostel, "Oakholme," Clarkehouse-road, is recognised by the Senate as a residence for women students, full particulars of which may be obtained of the tutor for women students.

Clinical Instruction.—The University is within easy reach of the various hospitals with which it is connected for clinical purposes. These are as follows: The ROYAL INFIRMARY (Secretary, Mr. J. W. Barnes), containing 326 beds, with an annual average number of over 3800 in-patients, over 11,500 out-patients, and over 23,000 casualties; the Royal Hospital (Hon. Sec., *pro tem.*, to the medical and surgical staff, Mr. Vincent Townrow), with 191 beds, and an annual number of 3000 in-patients, over 20,000 out-patients, and nearly 20,000 casualties; and the Jessop Hospital for Diseases of Women, with 80 beds, about 900 in-patients, and about 3057 out-patients; also a Maternity department, with about 450 in-patients per annum and about 700 out-patient cases attended. Special courses on Fevers are held at the City Fever Hospitals (600 beds) and on Mental Diseases at the South Yorkshire Asylum (1610 beds). For purposes of clinical practice the practices of the Royal Infirmary and Royal Hospital are amalgamated, giving a total of 511 beds for the treatment of medical, surgical, and special cases. There are special departments for the treatment of Diseases of the Eye at each institution, with wards assigned to them. In addition to these the Royal Infirmary has special departments for the treatment of Diseases of the Skin and Ear, with beds assigned to them, whilst at the Royal Hospital there are special out-patient departments for Diseases of the Throat, Ear, Skin, Orthopaedics, and Mental Diseases. Instruction is also given at the South Yorkshire Asylum (1694 beds). During the last year over 6000 patients passed through the wards of the two institutions, while those attending as out-patients numbered over 45,000. The department of Pathology and Bacteriology in the University is fitted with every requirement for the most advanced work in these subjects.

Fees.—The Composition Fee is £30 a year for each of the five years.

UNIVERSITY OF BRISTOL.

In the Faculty of Medicine there are the following degrees:—Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Dental Surgery (B.D.S.), and Master of Dental Surgery (M.D.S.). There are also the following diplomas: Diploma in Public Health (D.P.H.), Diploma in Dental Surgery (L.D.S.), and Diploma in Veterinary State Medicine.

Candidates for degrees in Medicine, Surgery, and Dentistry are required to pass an examination called the "Pre-graduate Examination" before they are admitted to the Senate. All courses are open to men and women alike.

Candidates for the degrees of Bachelor of Medicine and Bachelor of Surgery must be 21 years of age on the day of the examination. Candidates for the degree of Doctor of Medicine must be 25 years of age on the day of the examination.

pursued being those for the time being approved for the intermediate part of the B.Sc. curriculum. This part of the curriculum shall extend over one year. (Candidates who have passed the Higher School Certificate approved by the Board of Education in these subjects will not be required to sit for the first examination and will be regarded as having completed one year of study.)

The Second Examination.—The subjects of examination are: Organic Chemistry and Elementary Anatomy (Part I.) and Advanced Anatomy and Physiology (Part II.). Parts I. and II. may be passed separately or together.

The Final Examination.—The subjects of examination are: Materia Medica and Pharmacy, Pharmacology and Therapeutics, General Pathology, Morbid Anatomy, and Bacteriology (Part I.); Special Pathology, Forensic Medicine, Toxicology, and Public Health, Obstetrics (including Diseases of Women), Surgery (Systematic, Clinical, Practical, and Operative), Medicine (Systematic, Clinical, and Practical, including Mental Diseases) (Part II.). Candidates may pass I. and II. together, or separately, and Forensic Medicine and Toxicology may, at the option of the candidate, be taken either with Part I. or Part II.

Degree of Doctor of Medicine.—Candidates shall be Bachelors of the University of not less than two years' standing as such and may elect either (1) to pass an examination in General Medicine, or (2) to pass an examination in State Medicine, or (3) to present a Dissertation. The candidate who elects to pass the examination in State Medicine must hold a diploma in Public Health of some University or College, and the candidate who elects to present a Dissertation may be examined in the subject thereof.

Degree of Master of Surgery.—Candidates shall be Bachelors of not less than two years as such, during which period they shall have attended the Surgical Practice of an institution approved for the purpose. They shall pass an examination in Surgical Anatomy, Pathology, and Bacteriology, and Operative, Clinical, and General Surgery, and present to the University a Dissertation on some subject of Surgery.

Clinical Instruction.—The allied hospitals (BRISTOL ROYAL INFIRMARY and BRISTOL GENERAL HOSPITAL) have between them about 600 beds and extensive out-patient departments, special clinics for Diseases of Women and Children and those of the Eye, Throat, and Ear, in addition to large and well-equipped departments for Dental work and large outdoor Maternity Departments.

At each of these institutions there are well-arranged pathological museums, post-mortem rooms, and laboratories for Morbid Anatomy. There are also laboratories for work in Clinical Pathology, Bacteriology, and Cytology, in which special instruction is given in these subjects. Departments are provided and well-equipped for X ray work, both for diagnosis and treatment, the various forms of Electrical treatment, including High Frequency Currents, Electric Baths, Finson Light treatment, and Massage.

The students of the school also attend the practice of the Royal Hospital for Sick Children and Women, containing 140 beds, and that of the Bristol Eye Hospital, with 40 beds. The total number of beds available for clinical instruction is therefore about 750.

Daily Post-Graduate Study.—For those who are able to devote several hours each day to hospital practice the University offers special facilities for Post-graduate work. Qualified medical practitioners may be appointed as Clinical Assistants for a period of one or more months. They may act as Assistants, if times permit, in more than one department and in any of the hospitals during their period of study. They will be entitled to the use of the clinical laboratories and medical library, and have the right to attend in all departments, including operations, post-graduate and ordinary clinical demonstrations, and post-mortem examinations. Fee, £3 3s. per month.

Post-Graduate Clinical Work.—Demonstration courses with weekly lectures are held during May, June, and July. Fee, £2 2s. All inquiries and applications for admission should be addressed to the Director of Post-graduate Studies (Clinical Section), Pathological Department, University of Bristol, who can be seen on any day by appointment at the Pathological Department.

Further information as to scholarships, curricula, and fees can be obtained from the Dean of the Faculty of Medicine or the Registrar of the University.

UNIVERSITY OF WALES.

This University has the privilege of granting degrees in Medicine and Diplomas in Public Health. At the three constituent Colleges of Aberystwyth, Bangor, and Cardiff there are Professors of Chemistry, Botany, Zoology, and Physics, so that the students of the University can obtain proper instruction in the ancillary subjects. The foundation of a Medical Faculty has been laid at University College, Cardiff, where there is a recognised school of medicine.

University College, Cardiff: School of Medicine.—All classes are open to both men and women students. The courses of instruction given in the School of Medicine at the University College, Cardiff, are recognised as qualifying for the examinations of the Universities, Royal Colleges, and other licensing bodies in Great Britain and Ireland, and they are specially adapted to meet the needs of those University students studying for Welsh and London degrees. Having spent two or three years in study at Cardiff, and having passed the corresponding examinations, a student may proceed to London or elsewhere and complete his qualifying course for a University degree or for a diploma. It will be possible when the Welsh National School of Medicine is fully constituted for students to pursue the complete curriculum at Cardiff. Students who are preparing for these examinations may compound for their courses by paying a fee of £63, while a composition fee of £41 10s. includes all the necessary courses for the first and second examinations to the Diploma of the Conjoint Board. In all cases the composition fees may be paid by instalments. Hospital instruction is given at the King Edward VII.'s Hospital, Cardiff. The attention of students about to matriculate is drawn to the numerous entrance scholarships offered for competition at University College, Cardiff, in April next, most of which may be held by medical students. Full particulars of the examination for these may be obtained by application to the Registrar. In the department of Public Health established in 1899 instruction is given qualifying for the D.P.H. examinations. A course for the training of Health Visitors has been instituted. Further information may be obtained from the Dean of the Faculty of Medicine.

Clinical Instruction.—KING EDWARD VII.'S HOSPITAL, CARDIFF.—Students can attend the practice of this Hospital, which contains 450 beds. Founded 1837.—SWANSEA GENERAL AND EYE HOSPITAL.—Hospital, 256 beds, 186 civilian, 70 (sailor and soldier pensioners); Convalescent Home, 27 beds. In-patients, 332; out-patients, 10,144. The accommodation is about to be increased by 50 beds. There is a full-time paid Pathologist and paid Assistant Pathologist, with a completely fitted Laboratory, and also a Venereal Diseases Department.

ENGLISH MEDICAL CORPORATIONS GRANTING DIPLOMAS.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Under this heading we give the regulations for the examinations enjoined by the Conjoint Examining Board of the Royal Colleges of Physicians of London and Surgeons of England and of the Society of Apothecaries upon students desiring their respective diplomas of qualification. We do not give any list of schools recognised by these bodies as eligible to prepare students for their examinations beyond mentioning that all the schools which we have already described (under the heading of the Universities to which they are attached) are recognised as suitable places of instruction by the corporations granting medical diplomas. The courses of study at the principal colonial medical schools are also recognised as qualifying for the examinations of these corporations.

Professional Examinations.—There are three Examinations, called herein the First Examination, the Second Examination, and the Third or Final Examination, each being partly written, partly oral, and partly practical. These examinations will be held in the months of January, April, July, and September or October

degrees. Candidates for the degree of Doctor of Medicine are required to present a dissertation and, if the dissertation be accepted, may be required to pass an examination.

The first term commences on Oct. 1st. Prospectus, &c., can be obtained from the Dean of the Medical School.

Post-graduate work.—Practitioners wishing to attend Infirmary practice during short periods may do so on terms which may be obtained from the Clinical Sub-Dean.

Clinical Instruction.—THE LEEDS GENERAL INFIRMARY, in connexion with this medical faculty, has accommodation for 629 in-patients, including 88 beds at branch hospitals in the country. During the last year 9495 in-patients and 37,746 new out-patients were treated. Clinical teaching takes place daily in the wards, and Clinical lectures are given in Medicine and Surgery by the Physicians and Surgeons. There are Medical, Surgical, Ophthalmic, Aural, Electro-therapeutic, and Radiographic Departments, in each of which special instruction is imparted to students. A Gynecological and Extern Obstetric Department, together with Laryngeal and Skin Clinics, are in operation. Several valuable prizes are given at the end of each session. Numerous appointments at the Infirmary are annually open to students after qualification.

UNIVERSITY OF SHEFFIELD.

The Degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.). The courses and degrees in the Faculty of Medicine are open to men and women alike. Candidates must matriculate in the University or pass such other examination as may be recognised for this purpose by the University and sanctioned by the Joint Matriculation Board.

Degree of Bachelor of Medicine and Bachelor of Surgery.—A candidate must have attained the age of 21 years on the day of graduation and pursue the courses of study required by the University regulations during a period of not less than five years subsequently to the date of his matriculation, three of such years at least having been passed in the University, one at least being subsequent to the passing of the First Examination.

The First Examination.—The subjects of the examination are Chemistry, Physics, and Biology. The Intermediate B.Sc. Examination in these subjects will, on payment of the required additional fee, be accepted instead of this examination. Candidates must, after matriculation and registration as medical students, have attended courses of instruction (lectures and laboratory work) in chemistry, physics, and biology for one year each.

The Second Examination.—The subjects of the examination are Anatomy and Physiology.

The Third Examination.—The subjects of the examination are Pathology and Pharmacology. A candidate entering for the first, second, or third examination, who shall pass creditably in one subject of either examination and obtain a certain minimum of marks in the other, may enter for such other subject separately in a subsequent examination. Candidates must have completed the fourth year of professional study.

The Final Examination.—The subjects of the examination are Medicine (including Forensic Medicine, Public Health, Mental Diseases, and Diseases of Children); Surgery; and Obstetrics (including Gynecology). Candidates must satisfy the examiners in all subjects at the same examination. Candidates must have completed the fifth year of professional study.

Degree of Doctor of Medicine.—Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, must present a thesis embodying observations in some subject approved by the professor of medicine, and must pass an examination in the Principles and Practice of Medicine.

Degree of Master of Surgery.—Candidates must have taken the M.B., Ch.B. at least one year previously, and must since have held for not less than six months a surgical appointment in a public hospital. The subjects of examination are Systematic, Clinical, and Operative Surgery, Surgical Anatomy, Surgical Pathology, and Bacteriology.

Scholarships, &c.—At this University, in addition to four Elton Allen scholarships of £100 a year for three years,

holders of which can take the courses in the Faculty of Medicine, there are 8 scholarships and a Town Trust Fellowship. Full particulars as to curriculum, scholarships, &c., may be had on application to the Registrar or to the Dean of the Medical Faculty.

The Medical School.—The new buildings of the University opened in 1905 are situated at the west end of the city, adjoining Weston Park, and the Medical Department occupies the entire north wing of the University quadrangle. The various athletic and other students' societies are under the management of a Students' Representative Council, elected annually. There are large and comfortable common rooms both for men and women students. A refectory is open daily at the University where students may obtain refreshments, lunch, dinner, &c., at extremely moderate prices. The University journal, *Floeramus*, edited by a committee of staff and students, is published each term. The University Hostel, "Oakholme," Clarkehouse-road, is recognised by the Senate as a residence for women students, full particulars of which may be obtained of the tutor for women students.

Clinical Instruction.—The University is within easy reach of the various hospitals with which it is connected for clinical purposes. These are as follows: The ROYAL INFIRMARY (Secretary, Mr. J. W. Barnes), containing 326 beds, with an annual average number of over 3800 in-patients, over 11,500 out-patients, and over 23,000 casualties; the Royal Hospital (Hon. Sec., *pro tem.*, to the medical and surgical staff, Mr. Vincent Townrow), with 191 beds, and an annual number of 3000 in-patients, over 20,000 out-patients, and nearly 20,000 casualties; and the Jessop Hospital for Diseases of Women, with 80 beds, about 900 in-patients, and about 3057 out-patients; also a Maternity department, with about 450 in-patients per annum and about 700 out-patient cases attended. Special courses on Fevers are held at the City Fever Hospitals (600 beds) and on Mental Diseases at the South Yorkshire Asylum (1610 beds). For purposes of clinical practice the practices of the Royal Infirmary and Royal Hospital are amalgamated, giving a total of 511 beds for the treatment of medical, surgical, and special cases. There are special departments for the treatment of Diseases of the Eye at each institution, with wards assigned to them. In addition to these the Royal Infirmary has special departments for the treatment of Diseases of the Skin and Ear, with beds assigned to them, whilst at the Royal Hospital there are special out-patient departments for Diseases of the Throat, Ear, Skin, Orthopedics, and Mental Diseases. Instruction is also given at the South Yorkshire Asylum (1694 beds). During the last year over 6000 patients passed through the wards of the two institutions, while those attending as out-patients numbered over 45,000. The department of Pathology and Bacteriology in the University is fitted with every requirement for the most advanced work in these subjects.

Fees.—The Composition Fee is £30 a year for each of the five years.

UNIVERSITY OF BRISTOL.

In the Faculty of Medicine there are the following degrees:—Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Dental Surgery (B.D.S.), and Master of Dental Surgery (M.D.S.). There are also the following diplomas: Diploma in Public Health (D.P.H.), Diploma in Dental Surgery (L.D.S.), and Diploma in Veterinary State Medicine.

All candidates for degrees in Medicine, Surgery, and Dentistry are required to pass an examination called the School Certificate Examination, or to pass such examination as may be regarded as equivalent by the Senate. All courses, degrees, and diplomas are open to men and women alike. The winter session commences on Oct. 1st, 1920.

Conjoined Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates shall be not less than 21 years of age and shall have pursued the courses prescribed by University Regulations during not less than five and a half years, of which three shall have been passed in the University, and two of these three subsequent to pass in the second examination. All candidates for the degrees of M.B., Ch.B., are required to satisfy the examiners in the several subjects of three examinations.

The First Examination.—The subjects of examination are: Chemistry (Inorganic), Physics, and Biology, the courses

ship. A candidate who is not a Member is admissible after passing the First and Second Examinations of the English Conjoint Board, or the equivalent examinations in his University, on the production of certificates of attendance upon certain prescribed courses.

A Member of the College is admissible to the Second Examination at any time after having passed the First Examination, on producing satisfactory evidence of having been engaged not less than six years in the study (or study and practice) of the profession.

A candidate who is not a Member of the College must possess the registrable surgical and medical degrees of universities recognised by the Council and must have been engaged in the study (or study and practice) of the profession for not less than four years subsequent to the date of obtaining the recognised qualification, one year of which shall have been spent in attendance on the Surgical Practice of a recognised hospital. The diploma of Fellow is not conferred upon successful candidates until they have attained the age of 25 years.

The Regulations may be obtained on application to the Director of Examinations, Examination Hall, Queen-square, Bloomsbury, London, W.C. 1.

SOCIETY OF APOTHECARIES OF LONDON.

The Primary examination is held quarterly in two parts. Part I. Elementary Biology; Chemistry, Chemical Physics; Practical Chemistry; and Materia Medica and Pharmacy. Part II. includes Anatomy, Physiology, and Histology. This examination cannot be passed before the completion of twelve months' Practical Anatomy with Demonstrations, and these subjects cannot be taken separately except in the event of the candidate having previously passed in one.

The Final examination is held monthly except in September. It is in two sections. Section I. consists of three parts. Part I. Principles and Practice of Surgery, Surgical Pathology, and Surgical Anatomy, Operative Manipulation, Instruments, and Appliances. Part II. Medicine, Pharmacology, Pathology, and Morbid Histology; Forensic Medicine, Hygiene, Theory and Practice of Vaccination; and Mental Diseases. Part III. includes Midwifery, Gynaecology, and Diseases of New-born Children and the Use of Obstetric Instruments and Appliances. Section II. of the Final examination consists of two Parts. Part I. Clinical Surgery; Part II. Clinical Medicine and Medical Anatomy.

The course of study for the Final examination, Section I., includes attendance on the Surgical and Medical Practice, with Post-mortem Examinations, at a hospital connected with a medical school for a period of two winter and two summer sessions, including a course of Practical Midwifery, with attendance on 20 Midwifery cases. The course of medical study must extend over 45 months, and the offices of dresser or clinical clerk must be held at a hospital or other institution recognised by the Society. Two years must elapse after a candidate has passed the examination in Anatomy and Physiology before sitting for any part of the Final examination.

The course of study for the Final examination, Section II., includes either attendance on the Practice of Medicine and Surgery at a hospital or other institution recognised by the Society for a further period of 12 months, or six months as above and six months as a pupil of a registered practitioner holding a public medical or surgical appointment, or attendance at two special hospitals for six months (three months at each hospital), and for six months at a general hospital, all such hospitals to be recognised by the Society. Evidence shall also be given of practical instruction in Infectious Diseases and in Mental Diseases (at a lunatic asylum or in the wards of an institution containing a special ward set apart for the treatment of mental diseases), and in any two of the following subjects: Ophthalmic Surgery, Laryngology with Rhinology and Otology, Dermatology, and Diseases of Children. Candidates intending to present themselves for examination are required to give 14 days' notice. The fee for the Licence is 20 guineas. Female candidates are admitted to examinations. The examination offices are open from 10 A.M. to 4 P.M.: on Saturdays from 10 A.M. to 1 P.M. All letters should be addressed to the Secretary, Court of Examiners, Society of Apothecaries of London, Blackfriars, E.C. 4.

METROPOLITAN ANCILLARY SCHOOLS AND HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION.

The institutions which follow provide to the medical student and medical graduate facilities for different forms of instruction and clinical observation. In each case further information can be obtained from the secretary of the hospital.

THE SEAMEN'S HOSPITAL SOCIETY possesses three hospitals—the *Dreadnought* Hospital at Greenwich, 250 beds, and the Branch Hospital in the Royal Victoria and Albert Docks, E., 50 beds; the Hospital for Tropical Diseases, Endsleigh-gardens, London, N.W. 1; and the Angas Home 30 beds. It has also two Dispensaries—one in the East India Dock-road and the other at Gravesend—from which the patients are transferred to the hospitals. Secretary: Mr. P. J. Michelli, C.M.G.

WEST LONDON HOSPITAL, Hammersmith, W. 6.—This hospital has 160 beds, all of which are constantly in use. 2074 in-patients and 32,631 out-patients, whose attendances numbered 174,625, were treated last year. Attached to the hospital is the West London Post-Graduate College. The practice of the hospital is reserved exclusively for qualified men, no junior students being admitted. Instruction is given in the medical and surgical out-patient rooms and demonstrations are given in the wards every morning and afternoon. Lectures and demonstrations are given daily. Special Classes are held in Diseases of the Throat and Nose, Skin, and Eye, and in Gynaecology, Medical Electricity, Operative Surgery, Bacteriology, Anaesthetics, Intestinal Surgery, Medical and Surgical Diseases of Children, Blood and Urine, Clinical Microscopy, Tropical Medicine, Cystoscopy, Venereal Diseases, and Operative Ophthalmology. The accommodation for post-graduates consists of a large lecture room, together with reading, writing, and class rooms, &c. The hospital has a fully equipped pathological laboratory at which instruction is given in elementary bacteriology, a class being held every month. The fees for hospital practice, including lectures, are £6 6s. for three months, or £15 15s. for one year. The certificate of the hospital is accepted by the Admiralty, War Office, Colonial Office, and India Office in cases of study leave. Further information can be obtained on application to the Deans, Dr. Arthur Saunders and Mr. Bishop Harman, at the Hospital. Secretary of the Hospital: Mr. H. A. Madge.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N. 7.—This hospital is recognised by the Examining Board in England of the Royal Colleges of Physicians and Surgeons as a place of study during the fifth year of the medical curriculum. Besides the Honorary Staff there are six Anaesthetists, Pathologist, Resident Medical Officer, one resident House Physician, three resident House Surgeons, and resident casualty officer. The hospital contains 230 beds, which are fully occupied. There is also a ward for children under five years of age. The large rectangular and circular wards, each of which contains 35 beds, the observation wards, the two operation theatres, general and special out-patient and pathological departments, are specially designed with a view of offering the greatest facilities for clinical work. There is also a well-appointed electro-therapeutic department. The Pathological Department has been extended and is under the control of a Director of Clinical Pathology. The Reckitt Convalescent Home at Clacton-on-Sea belongs to the hospital. It contains 30 beds. Special departments have also been established for the treatment of tuberculosis and venereal diseases. A Hospital of Recovery containing 60 beds has now been established at "Summerlee," East-Flackley, which is placed at the disposal of discharged soldiers and sailors as well as civilians. Medical practitioners are cordially invited to see the general and special practice of the hospital. Demonstrations are given daily in the wards and out-patient departments. Clinical assistants (qualified), clinical clerks, and pathological clerks are appointed in the general and special departments and may receive certificates at the end of their term of office.

Further particulars from the Secretary of the Medical Committee at the Hospital.

unless otherwise appointed. Every candidate must give notice in writing to Mr. F. G. Hallett, O.B.E., Secretary of the Examining Board, Examination Hall, Queen-square, Bloomsbury, W.C., 14 clear days before the day of the examination, transmitting at the same time the required certificates.

The subjects of the *First Examination* are—Chemistry, Physics, and Elementary Biology. A candidate may take this examination in two parts at different times (Chemistry and Physics must be taken together until the required standard is reached in both or in one of these subjects, but a candidate will not be allowed to pass in one without obtaining at the same time at least half the number of marks required to pass in the other). A candidate will be admitted to examination in Chemistry and Physics, and in Elementary Biology on producing evidence of having passed the required Preliminary Examination and of having received instruction in these subjects at a recognised institution. A candidate rejected in one part or more of the First Examination will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection, and he will be re-examined in the subject or subjects in which he has been rejected. If referred in Chemistry, Physics, or Biology he must produce evidence of further instruction at a recognised institution. Any candidate who shall produce satisfactory evidence of having passed an examination for a degree in Medicine in any of the subjects of this examination conducted at a university in the United Kingdom, in India, or in a British colony will be exempt from examination in those subjects.

The fees for admission to the *First Examination* are as follows: For the whole examination, First Admission, £10 10s.; re-examination in Chemistry, £3 3s.; re-examination in Physics, £2 2s.; re-examination in Biology, £2 2s. Second Conjoint: This examination is in two parts—viz.: Part I., Anatomy and Physiology; Part II., Materia Medica and Pharmacology. A candidate must have attended at a recognised medical school, lectures on Anatomy, Physiology, and a course of Practical Physiology and Histology, and have dissected for twelve months during the ordinary session. He must also attend three months' lectures or demonstrations in Pharmacology and receive instruction in Practical Pharmacy. Part II. may be passed at the same time as Part I., or before or after that part, provided the conditions of admission to the whole examination have been fulfilled. The study of Anatomy and Physiology before passing in two of the three subjects of the first examination is not recognised. If rejected, a candidate before being admitted to re-examination must continue his studies at a recognised medical school for not less than three months.

Second Examination: £10 10s.; re-examination in Part I., £5 6s.; re-examination in Part II., £3 3s.

The subjects of the *Third or Final Examination* are: Part I., Medicine, including Medical Anatomy, Pathology, Therapeutics, Forensic Medicine, and Public Health. Part II., Surgery, including Pathology, Surgical Anatomy, and the use of Surgical Appliances. Part III., Midwifery and Diseases Peculiar to Women. Candidates may present themselves for Parts I., II., and III. of the examination separately or together at the expiration of not less than two years (24 months) from the date of passing the Second Examination on production of the certificates of study required for the respective parts, provided that the examination is not completed before the expiration of five years from the date of passing the Preliminary Examination.

The fees for admission to the *Third or Final Examination* are as follows: Third Examination: £21; re-examination in Part I., Medicine, £6 6s.; Part II., Surgery, £6 6s.; Part III., Midwifery and Diseases of Women, £4 4s. Members of English, Scotch, or Irish Universities £5 5s. for first admission to the examination and £36 15s. for the diploma.

A candidate referred on the *Third or Final Examination* will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection and will be required, before being admitted to re-examination, to produce a certificate, in regard to Medicine and Surgery, of having attended the Medical and Surgical Practice, or the Medical or Surgical Practice, as the case may be, during the period of his reference; and in regard to Midwifery and Diseases Peculiar to Women a certificate of having received,

subsequently to the date of his reference, not less than three months' instruction in that subject by a recognised teacher.

Students of recognised universities in England, Scotland, and Ireland, who have passed examinations for a degree in Medicine at their universities in the subjects of the First and Second Examinations of the Examining Board, may enter for the Final Examination at the expiration of two years from the date of passing in Anatomy and Physiology on production of the required certificates.

Members of certain recognised Indian, Colonial, and Foreign universities who have passed examinations for the Degree of Doctor or Bachelor of Medicine or Surgery in the subjects of the First and Second Examinations of the Examining Board may present themselves for the Final Examination under special conditions. The Board also grants Diplomas in Psychological Medicine and in Ophthalmic Medicine and Surgery. Candidates must hold a Medical qualification registrable in the United Kingdom or be Graduates in Medicine of an Indian, Colonial, or Foreign University. Particulars and conditions of admission to all examinations, fees, &c., may be obtained from the Secretary of the Examining Board, Examination Hall, Queen-square, Bloomsbury, London, W.C. 1.

ROYAL COLLEGE OF PHYSICIANS OF LONDON: THE MEMBERSHIP AND FELLOWSHIP.

The College confers two separate diplomas—the *Fellowship*, a purely honorary distinction, and the *Membership*, obtained by examination.

Membership.—Every candidate must have attained the age of 25 years, and be already registered or have passed a qualifying examination in accordance with the Medical Act of 1886, or obtained the degree of Doctor or Bachelor of Medicine at a University in the United Kingdom, in India, or a British colony, or a foreign qualification, for which the courses of study and the examinations have been adjudged by the Censors' Board to be satisfactory. The nature and extent of this examination will, in the case of each candidate, be determined by the Censors' Board. All other candidates must produce proof of having passed the examinations required for the Licence of the College. The examination is directed partly to pathology and partly to the practice of medicine and may be modified in circumstances to be ascertained by application to the Registrar. The fee for admission as a Member of the College is 40 guineas, except when the candidate for Membership is a Licentiate of the College, in which case the fee already paid for the Licence shall be deducted from the 40 guineas. The fee for the examination is £6 6s.

Fellowship.—The *Fellows* are selected annually from the ranks of the *Members* by the Comitia of the College.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: THE FELLOWSHIP.

The Royal College of Surgeons of England confers its diploma of Fellow upon a few distinguished persons in an honorary capacity. Two Members of long standing may also be elected to the Fellowship annually. But the bulk of the Fellows obtain the diploma as the result of examination.

Fellowship.—The examination for the Fellowship is divided into two parts—viz., the First Examination and the Second Examination. The subjects of the First Examination are Anatomy and Physiology, and those of the Second Examination are Surgery, including Surgical Anatomy and Pathology. The examinations are partly written and partly *visu et voce* and include the examination of patients and the performance of operations on the dead body. The examinations are held in May and November.

The fees for examination are:—First Examination, first admission 8 guineas, and for each readmission 5 guineas. Second Examination, each admission, 12 guineas. Of such examination fees 20 guineas will be reckoned as part of the fee payable upon admission to the Fellowship. The fee to be paid upon admission to the Fellowship is 30 guineas, except when the candidate is a Member of the College, in which case the fee is 20 guineas.

A Member of the College is admissible to the First Examination at any time after receiving his Diploma of Member-

ROYAL CHEST HOSPITAL (for all affections of the heart and lungs), City-road, E.C. (80 beds).—This hospital provides accommodation for 80 in-patients. Expenditure for 1919 £14,699, income £13,605. The attendance of out-patients averages 25,000 annually. Secretary: Mr. A. T. Mays.

THE MOUNT VERNON HOSPITAL FOR TUBERCULOSIS AND DISEASES OF THE LUNGS AND HEART, NORTHWOOD, CENTRAL OUT-PATIENT DEPARTMENT, Fitzroy-square, W.—The hospital contains 110 beds. Number of in-patients, 440; out-patients, 2330. Resident Medical Staff. Clinical Demonstrations are given by the Visiting Medical Staff at the hospital at Northwood. Clinical assistants are appointed to physicians in the wards and in the out-patient department. Secretary: Mr. W. J. Morton. Offices: 7, Fitzroy-square, W.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL AND MIDWIFERY TRAINING SCHOOL, Marylebone-road, N.W.—This hospital receives about 2000 patients annually, besides having a large out-patient department. Medical pupils are received at all times of the year. Pupils have unusual opportunities of seeing obstetric complications and operative midwifery, on account of the very large number of primiparous cases—nearly one-half of the total admissions. Clinical instruction is given on the more important cases which present themselves. Special Lecture-demonstrations are given by members of the staff. Certificates of attendance at this hospital are recognised by all the Universities, Colleges, and licensing bodies. Pupil midwives and monthly nurses are received and specially trained. A Residential College provides accommodation for five men at a time, students and qualified practitioners, and is opposite the hospital, with which it is in telephonic communication. Arrangements have been made for Medical Students to receive the preliminary instruction in Practical Midwifery recommended by the General Medical Council. Women students are received. For further particulars application should be made to Mr. Arthur Watts, Secretary, at the hospital.

THE HOSPITAL FOR WOMEN, Soho-square, W.—In connexion with the out-patient department there has been for some years a well-organised Clinical Department. The appointments are open to qualified medical men and women. Every facility is afforded them by the gynaecologists in the out-patient department of obtaining experience in diagnosis and treatment and the practical use of instruments. Fee for one month £2 2s.; for each subsequent month the same. The hospital contains 68 beds. In the out-patient department there were over 4000 new cases during the past year, the total number of out-patient attendances being 14,500. This large number affords exceptional opportunities for examining and studying most of the varieties of the diseases of women. Applications should be made to the Secretary, Mr. Alfred Hayward.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Qualified practitioners are admitted as clinical assistants to both the in- and out-patient departments. Demonstrations are given daily in both departments. The fees, payable in advance, are £3 3s. for three months. Full particulars may be obtained on application to the Secretary at the hospital. There are 70 beds. Secretary: Mr. G. H. Hawkins.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Glamis-road, Shadwell, E.—The hospital maintains 130 cots, and on an average 245 out-patients are seen daily. Clinical instruction is given by the physicians and surgeons to the hospital, which is recognised by the Conjoint Board for England as a school of medical teaching for students in the fifth year of the curriculum. All particulars may be obtained on application to the Secretary. Two clinical clerkships for qualified or unqualified students are open every three months subject to reappointment if desired. Clinical assistants (qualified men only) are from time to time appointed in the out-patient department. Any additional information may be obtained on applying to Mr. W. M. Wilcox, the Secretary, at the hospital.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.1, contains 240 beds, besides 30 beds at the Branch Hospital, Highgate. The hospital having been recognised by the Conjoint Board for England as a place where, under the new curriculum, six months of the fifth year may be spent in clinical work, the practice is arranged

to meet this need and is open to students of both sexes who have completed four years of medical study and also to qualified medical men and women. The medical staff are recognised by the University of London as teachers in Diseases of Children. Arrangements have also been made with University College Hospital and the London School of Medicine for Women for the routine admission of their students of both sexes to clerkships and dresserships in the wards. Appointments are made every three months to six medical clerkships, which are open to students of the hospital. Clinical instruction is given daily by members of the visiting staff. Fees for hospital practice, one month, £2 2s.; three months, 5 guineas; perpetual ticket, 10 guineas. Clinical Clerks, 1 guinea for one month. Ophthalmological Clerkships.—Clinical Clerks are appointed once a month. Fees £1 1s. for one month's attendance. Pathological Clerkships.—Facilities are afforded for obtaining theoretical and practical instruction in Clinical Pathology and Bacteriology in the Pathological Laboratories. Clerks attend for about four hours daily. Fees: For one month, £3 3s.; for two months, £5 5s.; for three months, £6 6s. A reduction is made in the case of those already holding tickets for general attendance at the hospital. Time so spent in clerking and dressing is recognised by the Universities of London, Oxford, and Cambridge, and by the Conjoint Board for England as part of the approved curriculum for students entering for a final examination. These appointments are open to students of all recognised medical schools. In addition, special courses in post-graduate work are held throughout each term of the year, as well as routine post-graduate instruction daily. Details may be obtained by application to the dean or secretary at the hospital. The medical school is a constituent part of the new London Post-Graduate Association. Acting Secretary: Mr. James McKay.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—This hospital contains 76 cots and a very extensive Out-patient Department. About ten clinical assistants (either sex), to work with the Honorary Medical Staff for Out-patients, are appointed quarterly for a period of three months; there is no salary attached to these posts; but, on the other hand, no fees are charged. Secretary: H. C. Staniland Smith.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—The hospital contains 104 beds and has a large out-patient department (over 1200 weekly); the home at Broadstairs has 50 beds. Out-patients are seen as under:—Diseases of the Eye: Tuesday, 2 P.M. Diseases of the Skin: Wednesday, 1.30 P.M. Whooping-cough Cases: Friday, 2.30 P.M. Dental Cases: Thursday, 1.30 P.M. Medical and Surgical Cases: Mornings at 9.30. Accidents and urgent cases are admitted at any time. Secretary: Mr. H. G. Evered.

QUEEN'S HOSPITAL FOR CHILDREN (late North-Eastern Hospital for Children), Hackney-road, Bethnal Green, E.2. (Telephone 305 Dalston.) For the sick children of the poor under 14 years of age. Established 1867. 134 beds in London and 36 at the seaside branch, "Little Folks' Home, Dershill. During the past year 481 in-patients and 53,119 out-patients (attendance 107,075) were received. The surgeons attend on Tuesdays and Wednesdays at 1.45 P.M. and Fridays and Saturdays at 9.30 A.M.; the physicians daily at 1.45 P.M., except Saturday, 9.30 A.M., and Wednesday and Friday, 9.30 A.M., as well as 1.45 P.M. The practice of the hospital is open to students by arrangement with the medical staff. Applications should be made to the Secretary, Mr. T. Glenton-Kerr.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Clinical Assistants (men or women) are from time to time appointed to the members of the Visiting Staff attending in the Out-patient Department at this hospital, and facilities are given for attendance in the wards.

ALEXANDRA HOSPITAL FOR CHILDREN WITH HIP DISEASE, Queen-square, W.C.—At this hospital students who have obtained a recommendation from their teachers can attend to see the practice. The out- and in-patients' clinic is held on Mondays and Thursdays at 3 P.M.

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields, 1804-1899), City-road, E.C. 138 beds.—This hospital, known as Moorfields Eye Hospital, was moved in 1899 to larger buildings in City-road. There were 2339 in-patients, the out-patients were 41,725, of whom 26,101 were new

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—This general hospital is in the midst of a densely populated neighbourhood of more than half a million inhabitants. It contains medical, surgical, gynaecological, and children's wards, having 125 beds. There are special departments for gynaecological cases, diseases of the eye, ear, throat, and nose, and dentistry. Operations are performed every afternoon of the week (except Saturday) at 2.30 P.M. Clinical instruction, ordinarily including laboratory classes, and lectures are given in the wards and out-patient departments, laboratories, and lecture hall in connexion with the North-East London Post-graduate College attached. There are four Resident Medical Officers, and Clinical Assistants are appointed under certain conditions. Further particulars in regard to the hospital may be obtained from Mr. H. W. Carson, Secretary to the Medical Committee, 111, Harley-street, W.; or from Dr. A. J. Whiting, Dean of the North-East London Post-graduate College, 19A, Cavendish-square, W. Secretary, Mr. F. W. Drewett.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W. (Established 1873; incorporated 1917).—The hospital contains 120 beds. The in-patients in 1919 were 1223, and the out-patients and casualties numbered 16,466 new cases. The medical and surgical practice of the hospital is open to students and practitioners. Operations: Mondays at 2 P.M., Tuesdays, Wednesdays, Thursdays, and Fridays at 9 A.M.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—The Hampstead General Hospital (formerly at Kentish Town) have been amalgamated since 1907. The Hampstead General Hospital (123 beds), viz., 102 free, 6 isolation, &c., and 20 private or contributory) accommodates the in-patients, and the North-West London Hospital (formerly at Hampstead) accommodates the out-patients, with the exception of the out-patients in the wards, attend exclusively at the out-patient department, Bayham-street, Camden Town. Out-patients: 10 A.M. to 1 P.M. Further particulars from the secretary at the hospital (Haverstock Hill, N.W.3).

EMERGENCY GARDEN, ANDERSON HOSPITAL, 144, Easton-road, N.W.1.—A number of the students of the London School of Medicine for Women work in the E.G.A. Hospital under the visiting staff, and in return for much valued clinical gynaecological teaching they perform the duties assigned to students in the wards of a general hospital. Post-graduate courses in the treatment of venereal disease are held in connexion with the London School of Medicine for Women. Secretary, Miss Imogen H. Murphy.

THE SOUTH LONDON HOSPITAL FOR WOMEN, South Side, Clapham Common, S.W.1.—This hospital, officered by 89 D. Newington Causeway, S.E.—This hospital for women, entirely by medical women, is a general hospital for women, girls, and small children of both sexes, and provides accommodation for 80 patients. All diseases are treated with the exception of acute infectious fevers and mental disease. There are Ophthalmic, X Ray, and Pathological Departments. The hospital is a centre for the treatment of venereal diseases under the Public Health (Venereal Diseases) Regulations, 1916. The provision of additional facilities for post-graduate training for medical women is one of the special objects of the hospital. The number of in-patients treated during the year 1919 was 1142. At the Out-patient Department in Newington Causeway 6942 new cases were treated during the past year, the total number of out-patient attendances amounting to 33,015. Clinical assistants (qualified women only) are from time to time appointed in the Out-patient Department. Secretary: Miss M. E. Riddle.

FRENCH HOSPITAL AND DISPENSARY, Shaftesbury-avenue, W.C.—This hospital, which was founded in 1867 to afford medical treatment for poor foreigners who speak the French language, has 74 beds. The Convalescent Home and Retreat for Aged French People at Brighton contains 61 beds. Secretary: Mr. G. Pondeygre.

ITALIAN HOSPITAL, Queen-square, W.C.—This institution was established in 1834 for the maintenance and medical treatment of Italian and Italian-speaking subjects, irrespective of their religious and political

opinions, who may be suffering from sickness or bodily infirmity, but the sick poor of any nationality are also admitted for treatment. The institution also provides surgical and medical relief to Italians and others not being inmates of the hospital. It has 50 beds.

GERMAN HOSPITAL, Dalston, E.8.—This hospital was founded in 1845 with the object of supplying medical aid to poor people speaking the German language and for cases of emergency and of accident. It has 124 beds, including a sanatorium with 10 beds. Also a convalescent home at Hitchin with 40 beds, occupied, since 1915, by convalescent British soldiers.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Albany Memorial), Queen-square, Bloomsbury, W.C.—The hospital, with the Finchley branch, and branches in Bloomsbury and Clapham Park, contains 270 beds and cots. The physicians attend every Monday, Tuesday, Thursday, and Friday at 2 P.M. In- and out-patient practice at that hour. Clinical Clerks are appointed under the in-patient and out-patient physicians. Lectures are given on Tuesdays and Fridays at 3.30. The hospital has been recognised by the Conjoint Board for England as a place where part of the fifth year may be devoted to clinical work. All communications concerning clinical appointments, lectures, hospital practice, and fees should be addressed to the Secretary at the hospital.

HOSPITAL FOR EPILEPSY AND PARALYSIS, &c., Maida Vale, W. (85 beds).—Both in-patient and out-patient departments of this hospital are open free to students as well as to medical graduates. Secretary and General Superintendent: Mr. H. W. Burleigh.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Graduates in medicine and senior students may attend demonstrations in the Out-patient Department. No fees are charged. The Savill Prize and Medal are at present in abeyance, as well as routine demonstrations by the staff.

BETHLEM ROYAL HOSPITAL, St. George's-road, S.E.—This hospital is open for the admission of two Resident House Physicians who have recently obtained their diplomas to practise Medicine and Surgery. They are permitted to reside in the hospital for a term generally not exceeding six months, commencing May 1st and Nov. 1st, and are provided with apartments, complete board, attendance, laundry, and a salary at the rate of £100 per annum. They are under the direction of the Physician Superintendent and are elected by the Committee from candidates whose testimonials appear to be most satisfactory. The students of certain specified London Medical Schools receive Clinical Instruction in the wards of the hospital and qualified practitioners and other students may attend for a period of three months on payment of a fee. A department for nervous diseases has been instituted in a building quite apart from the main hospital. Neurological and early mental cases are dealt with.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—The hospital contains 333 beds. The Sanatorium at Frimley contains 100 beds and 50 beds for paying patients. Six House Physicians reside in the hospital for a term of six months; their duties include attendance in the out-patient department. Pupils are admitted to the practice of the hospital: terms £2 2s. for one month; three months, £4 4s.; six months, £7 7s. Clinical Demonstrations are given throughout the year by members of the medical staff. Clinical Assistants are appointed to the Assistant Physicians in the out-patient department and Clinical Clerks to the Physicians in the wards. The hospital has been recognised by the Conjoint Board for England as a place where six months of the fifth year may be spent in clinical work. The medical practice of the hospital is also recognised by the University of London, the Apothecaries' Society, and the Army and Navy and Indian Medical Boards. Dean of the Medical School: Dr. L. S. Barrell, from whom particulars of lectures, clinical appointments, and hospital practice can be obtained.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—During the past year 1052 in-patients have been treated in the wards. The out-patients treated during 1919 numbered 10,955. Address "Secretary of the Medical Committee."

ROYAL CHIST HOSPITAL (for all affections of the heart and lungs), City-road, E.C. (80 beds).—This hospital provides accommodation for 80 in-patients. Expenditure for 1919 £14,699, income £13,605. The attendance of out-patients averages 25,000 annually. Secretary: Mr. A. T. Mays.

THE QUEEN VERNON HOSPITAL FOR TUBERCULOSIS AND DISEASES OF THE LUNGS AND HEART, NORTHWOOD, CENTRAL OUT-PATIENT DEPARTMENT, Fitzroy-square, W.—The hospital contains 110 beds. Number of in-patients, 440; out-patients, 2330. Resident Medical Staff. Clinical Demonstrations are given by the Visiting Medical Staff at the hospital at Northwood. Clinical assistants are appointed to physicians in the wards and in the out-patient department. Secretary: Mr. W. J. Morton. Offices: 7, Fitzroy-square, W.

QUEEN CHARLOTTE'S LIVING-IN HOSPITAL AND MIDWIFERY TRAINING SCHOOL, Marylebone-road, N.W.—This hospital receives about 2000 patients annually, besides having a large out-patient department. Medical pupils are received at all times of the year. Pupils have unusual opportunities of seeing obstetric complications and operative midwifery, on account of the very large number of primiparous cases—nearly one-half of the total admissions. Clinical instruction is given on the more important cases which present themselves. Special Lecture-demonstrations are given by members of the staff. Certificates of attendance at this hospital are recognised by all the Universities, Colleges, and licensing bodies. Pupil midwives and monthly nurses are received and specially trained. A Residential College provides accommodation for five men at a time, students and qualified practitioners, and is opposite the hospital, with which it is in telephonic communication. Arrangements have been made for Medical Students to receive the preliminary instruction in Practical Midwifery recommended by the General Medical Council. Women students are received. For further particulars application should be made to Mr. Arthur Watts, Secretary, at the hospital.

THE HOSPITAL FOR WOMEN, Soho-square, W.—In connexion with the out-patient department there has been for some years a well-organised Clinical Department. The appointments are open to qualified medical men and women. Every facility is afforded them by the gynaecologists in the out-patient department of obtaining experience in diagnosis and treatment and the practical use of instruments. Fee for one month £2 2s.; for each subsequent month the same. The hospital contains 68 beds. In the out-patient department there were over 4000 new cases during the past year, the total number of out-patient attendances being 14,500. This large number affords exceptional opportunities for examining and studying most of the varieties of the diseases of women. Applications should be made to the Secretary, Mr. Alfred Hayward.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Qualified practitioners are admitted as clinical assistants to both the in- and out-patient departments. Demonstrations are given daily in both departments. The fees, payable in advance, are £3 3s. for three months. Full particulars may be obtained on application to the Secretary at the hospital. There are 70 beds. Secretary: Mr. G. H. Hawkins.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Glamis-road, Shadwell, E.—The hospital maintains 130 cots, and on an average 245 out-patients are seen daily. Clinical instruction is given by the physicians and surgeons to the hospital, which is recognised by the Conjoint Board for England as a school of medical teaching for students in the fifth year of the curriculum. All particulars may be obtained on application to the Secretary. Two clinical clerkships for qualified or unqualified students are open every three months subject to reappointment if desired. Clinical assistants (qualified men only) are from time to time appointed in the out-patient department. Any additional information may be obtained on applying to Mr. W. M. Wilcox, the Secretary, at the hospital.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C. 1, contains 240 beds, besides 30 beds at the Branch Hospital, Highbury. The hospital having been recognised by the Conjoint Board for England as a place where, under the new curriculum, six months of the fifth year may be spent in clinical work, the practice is arranged

to meet this need and is open to students of both sexes who have completed four years of medical study and also to qualified medical men and women. The medical staff are recognised by the University of London as teachers in Diseases of Children. Arrangements have also been made with University College Hospital and the London School of Medicine for Women for the routine admission of their students of both sexes to clerkships and dresserships in the wards. Appointments are made every three months to six medical clerkships, which are open to students of the hospital. Clinical instruction is given daily by members of the visiting staff. Fees for hospital practice, one month, £2 2s.; three months, 5 guineas; perpetual ticket, 10 guineas. Clinical Clerks, 1 guinea for one month. Ophthalmological Clerkships.—Clinical Clerks are appointed once a month. Fees £1 1s. for one month's attendance. Pathological Clerkships.—Facilities are afforded for obtaining theoretical and practical instruction in Clinical Pathology and Bacteriology in the Pathological Laboratories. Clerks attend for about four hours daily. Fees: For one month, £3 3s.; for two months, 25 5s.; for three months, 26 6s. A reduction is made in the case of those already holding tickets for general attendance at the hospital. Time so spent in clerking and dressing is recognised by the Universities of London, Oxford, and Cambridge, and by the Conjoint Board for England as part of the approved curriculum for students entering for a final examination. These appointments are open to students of all recognised medical schools. In addition, special courses in post-graduate work are held throughout each term of the year, as well as routine post-graduate instruction daily. Details may be obtained by application to the dean or secretary at the hospital. The medical school is a constituent part of the new London Post-Graduate Association. Acting Secretary: Mr. James McKay.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, S.E.—This hospital contains 76 cots and a very extensive Out-patient Department. About ten clinical assistants (either sex), to work with the Honorary Medical Staff for Out-patients, are appointed quarterly for a period of three months; there is no salary attached to these posts; but, on the other hand, no fees are charged. Secretary: H. C. Staniland Smith.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—The hospital contains 104 beds and has a large out-patient department (over 1200 weekly); the home at Broadstairs has 50 beds. Out-patients are seen as under:—Diseases of the Eye: Tuesday, 2 P.M. Diseases of the Skin: Wednesday, 1.30 P.M. Whooping-cough Cases: Friday, 2.30 P.M. Dental Cases: Thursday, 1.30 P.M. Medical and Surgical Cases: Mornings at 9.30. Accidents and urgent cases are admitted at any time. Secretary: Mr. H. G. Evered.

QUEEN'S HOSPITAL FOR CHILDREN (late North-Eastern Hospital for Children), Hackney-road, Bethnal Green, E.2. (Telephone 305 Dalston). For the sick children of the poor under 14 years of age. Established 1867. 134 beds in London and 36 at the seaside branch, "Little Folks' Home, Bexhill. During the past year 1481 in-patients and 53,119 out-patients (attendance 107,075) were received. The surgeons attend on Tuesdays and Wednesdays at 1.45 P.M. and Fridays and Saturdays at 9.30 A.M.; the physicians daily at 1.45 P.M., except Saturday, 9.30 A.M., and Wednesday and Friday, 9.30 A.M., as well as 1.45 P.M. The practice of the hospital is open to students by arrangement with the medical staff. Applications should be made to the Secretary, Mr. T. Glenton Kerr.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Clinical Assistants (men or women) are from time to time appointed to the members of the Visiting Staff attending in the Out-patient Department at this hospital, and facilities are given for attendance in the wards.

ALEXANDRA HOSPITAL FOR CHILDREN WITH HIP DISEASE, Queen-square, W.C.—At this hospital students who have obtained a recommendation from their teachers can attend to see the practice. The out- and in-patients' clinic is held on Mondays and Thursdays at 3 P.M.

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields), City-road, E.C. 138 beds.—This hospital, known as Moorfields Eye Hospital, was moved in 1899 to larger buildings in City-road. There were 2339 in-patients, of whom 26,101 were new

out-patients, and the attendances were 93,186. Operations are performed daily from 10 A.M. to 1 P.M., and four surgeons attend on each day. Students are admitted to the practice of the hospital. Fee for six months, £3 3s.; perpetual, £5 5s. Special courses of instruction, which extend over a period of six months are given by members of the Surgical Staff; beginning in October and March. A composition fee of 24 guineas (£25 4s.) will entitle students to a perpetual ticket, and will admit them once to all the lectures and full classes and to the examination for the hospital's full certificate. Students of the hospital are eligible for the offices of house surgeon or clinical and junior assistants. Junior assistants are appointed every three months. Any further information will be furnished by Mr. Robert J. Daint, Secretary Superintendent.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street (next door to Charing Cross Hospital), Strand, W.C.2.—The hospital contains 40 beds. Out-patients, who number over 13,000 annually, are seen daily at 1 P.M., and operations are performed in the theatre at 3 P.M. The practice of the hospital is open to both men and women practitioners and students. Clinical evenings, at which interesting cases are shown and discussed, are held twice each term at 8 P.M. In addition to the ordinary clinical instruction, a systematic course of Lectures and Practical Classes commences in October, January, and May. Lectures in this course are given daily (except on Saturday) at 4.30 P.M., including all subjects required by candidates for the D.O.M.S. R.C.P. & S. Eng., Part II., and practical instruction is given in Operative Surgery and Ophthalmic Pathology and Bacteriology. Fees: One month, £1 1s.; three months, £2 2s.; six months, £3 3s.; perpetual, £5 5s.; composition fee for perpetual ticket and attendance at classes (except Operative Surgery and Pathology, for which fee in each case is £2 2s. per course), £10 10s. Students of the hospital are eligible for appointment as house surgeon, assistant house surgeon, refraction assistant, and senior or junior clinical assistant. Full details can be obtained on application to the Dean.

ROYAL EYE HOSPITAL, St. George's-circus, Southwark, S.E.—There are 40 beds and 2 cots. There were 56,377 attendances in the Out-patient Department last year, and the new patients numbered 22,654. Out-patients are seen daily 1.30 to 2.30 P.M. Post-graduate course: The new term beginning in October. Dean: Mr. A. D. Griffith.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd-street, St. Pancras, W.C.—This hospital has 40 beds and possesses facilities for clinical teaching daily. Cases of instruction in the use of the ophthalmoscope, with demonstrations on cases, and also classes on refraction and other subjects are given during the winter months, commencing in October. The out-patient work begins at 1 o'clock, and operations are performed daily between 2 and 4 o'clock. This school is recognised as a teaching institution by the Universities of London and Oxford, and the Joint Board of the Royal Colleges of Surgeons and Physicians. The school has also undertaken to receive a portion of the pupils of the University College Hospital for the purposes of ophthalmic training. The Pathological and Bacteriological Laboratories have been rendered available for the use of any ophthalmic surgeons who desire to send specimens for examination. A small fee is charged for a report. Secretary: H. R. S. Druce.

WESTERN OPHTHALMIC HOSPITAL, Marblebone-road, N.W.—15 beds. Out-patient attendances 20,000. Both In-patient and Out-patient Departments of this Hospital are open to medical graduates. Fees £1 1s. per three months. Honorary Secretary: W. H. Burleigh.

HOSPITAL FOR DISEASES OF THE THROAT, Golden-square, W. (which is amalgamated The London Throat Hospital, Great Portland-street).—Clinical instruction in the diagnosis and treatment of disease is given daily in the out-patient department from 2 to 5 P.M., and on Tuesdays and Fridays from 6.30 to 9 P.M. The hospital contains 60 beds for in-patients. There is an annual out-patient attendance of over 60,000. Minor operations are performed Tuesdays, Wednesdays, and Thursdays, at 9.30 A.M. Major operations are performed on Tuesdays, Wednesdays, Thursdays, and Fridays, at 10 A.M. Also Thursdays and Fridays at 2 P.M. Practitioners and medical students are admitted

to the practice of the hospital at a fee of £5 5s. for three months, £7 7s. for six months, or £10 10s. for perpetual studentship. From amongst the students junior clinical assistants are appointed periodically. For terms and further information apply to the Dean, Mr. Lionel Colledge.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—Clinical lectures: The hospital is open daily to all qualified medical practitioners on presentation of their visiting cards. Demonstrations of the cases and clinical instruction are given daily by the chief surgeon of each clinique. Medical practitioners are invited to visit the wards, and are welcomed both in the operating theatre, when they are desirous of viewing the major operations, and in the out-patient operating room when minor operations are being performed. Clinical lectures are delivered from time to time, particulars of which are given in the medical journals, and at the hospital. Systematic classes and courses of instruction and demonstrations. Three courses of instruction are open to practitioners attending the hospital: First, the course in methods of examination and diagnosis; second, the course of systematic instruction in the diseases of the nose, throat, and ear; and third, the operative surgery class. The course in methods of examination and diagnosis is introductory in character. It comprises lessons of practical teaching in the actual examination of patients and in the manipulation of instruments. Systematic instruction in Diseases is more advanced. It consists of over 30 lessons in all on pathology, diagnosis, and treatment. Minute details in operative surgery are not gone into, as this is left to the operative surgery class. Full syllabus will be sent on application to the Secretary.

THE METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL.—The hospital is in Fitzroy-square, W. The Out-patient Department is opened daily at 2.30 P.M. to all medical practitioners and senior students for acquiring clinical instruction and technical knowledge. Operations upon in-patients are performed on Mondays, Tuesdays, Wednesdays, Thursdays, and Fridays at 10 A.M. Fee for one month's attendance at the hospital £2 2s., and for three months £3 3s. Clinical Assistants are appointed as vacancies occur, and have responsible duties.

ROYAL EAR HOSPITAL.—This Hospital is now the Ear, Nose and Throat Department of University College Hospital. All the clinics are held at the latter Hospital.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM, City-road, E.C. (Founded 1835).—The hospital contains for men and women 56 beds. Operations are performed on Mondays, Wednesdays, and Thursdays at 2.30 P.M. Medical practitioners and students are invited to the operations and to the clinical instruction in the wards and in the out-patient department. Average out-patient attendances, 4283 per year. Average in-patients, 672 per year.

ST. PETER'S HOSPITAL FOR STONE AND OTHER URINARY DISEASES, Henrietta-street, Covent Garden. Established 1860. New Hospital opened 1882.—The hospital contains 30 beds for men and 2 beds for women and children. Medical practitioners and students are invited to the clinical instructions which are given in the wards and out-patient department daily, and to the operations in the theatre on Mondays, Wednesdays and Fridays at 2 P.M. Average beds occupied daily, 30; average out-patients seen daily, 100.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49 Leicester-square, W.C.2.—The in-patient department, 40 beds is at 262, Uxbridge-road, W. 12. The out-patient practice is open to the medical profession every day at 2 and every evening (except Saturday) at 6. At the afternoon clinic demonstrations on the different diseases presenting themselves are given. Venereal Diseases, under the Government scheme, are admitted at all clinics. The X-ray department is open every afternoon except Saturday. The Chesterfield Lectures are given on Thursdays at 6 P.M., October to March commencing Oct. 14th. At the end of the course the Chesterfield medal may be competed for by those who have attended three-fourths of the lectures. Special laboratory courses in Pathology and Bacteriology of the Skin may be arranged for.

LONDON LOCK HOSPITAL AND RESCUE HOME.—In the Female Hospital at Harrow-road, W. 9, there are 162 beds, and 635 patients were admitted in 1919. In the Male Hospital and Out-patient Department in Dean-street, Soho, W.

there are 43 beds, which during 1919 accommodated 475 patients. 62,575 out-patients were treated. 12,000 injections of the substitutes for salvarsan were made in 1918. Male patients are seen at 91, Dean-street, on Mondays and Tuesdays from 1 to 2 P.M. and from 6 to 8 P.M.; on Wednesdays from 6 to 8 P.M.; on Thursdays at 11.30 A.M. and 5-7 P.M. (female patients); on Fridays from 5 P.M. (female patients); and on Saturdays from 2 to 4 P.M. (males). Pathological Department, Tuesdays at 6.30 P.M. Days for intravenous injections 91, Dean-street, W. 1, Tuesdays and Saturdays at 9 A.M. (men); women, Thursdays at 5.30 P.M., Fridays at 5.30 P.M. Female patients are seen at 283, Harrow-road, Paddington, Tuesdays and Thursdays at 2 P.M., and irrigations are given every evening from 6 to 8 P.M. Secretary: Henry J. Eason. Head office: 283, Harrow-road, W. 9.

ENGLISH PROVINCIAL ANCILLARY SCHOOLS AND HOSPITALS.

Under this heading we include all the hospitals which are recognised by the English Royal Colleges for a part of the required attendance on medical and surgical practice, for medical clerkships, and surgical dresserships. The list includes nearly every hospital of a general character in the country having more than 150 beds, though occasionally a large hospital is admitted because equally good opportunities are afforded to students at other institutions in its neighbourhood, while a small hospital may be included because no such facilities for study are present elsewhere. The list is arranged alphabetically as to the town where the hospital is located. Most of the largest general hospitals of the kingdom have already been noticed in connexion with the Universities.

BATH ROYAL UNITED HOSPITAL, Bath.—This hospital contains 130 beds, and possesses a fine library. Secretary: Mr. J. M. Sheppard. V.D. Clinics are held on Tuesdays (for women); and on Fridays and Saturdays (for men) from 5 to 7 P.M.

BEDFORD COUNTY HOSPITAL, Bedford.—This hospital has 100 beds, with X Ray and Pathological Departments, and a convalescent home in connexion with the institution. Secretary: Mr. Beauchamp Wadmore.

BRADFORD ROYAL INFIRMARY, Bradford.—This hospital contains 215 beds. The material passing through the surgical wards consists of major operations, chiefly abdominal, and gynecological work, and affords excellent facilities for either students or post-graduates. Plans for a new hospital of 382 beds have been adopted, and the building operations will be commenced as soon as the funds in hand will allow.

ROYAL SUSSEX COUNTY HOSPITAL, Brighton (220 beds).—This hospital affords ample facilities for students, possessing a large out-patient department, and a well-appointed clinical research and bacteriological department. The hospital does not take resident pupils, but out-pupils may attend the practice of the hospital for any period not exceeding two years on payment in advance of such a fee, not exceeding 20 guineas, as the Board of Management shall direct.

KENT AND CANTERBURY GENERAL HOSPITAL, Canterbury.—The hospital contains 110 beds. Pupils of the staff are admitted to the practice of the hospital. Operations four days of the week. There is an Ophthalmic Department, a Venereal Clinic, an Orthopaedic Department, &c. Secretary, Mr. F. P. Carroll.

COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry (established 1840).—This hospital contains 335 beds, and a new wing as well as theatre and kitchens have been added. Clinical students are received, and there are paying wards. Secretary: Miss H. Hooper.

DERBYSHIRE ROYAL INFIRMARY, Derby.—This hospital contains 320 beds. It was founded in 1810, and was entirely rebuilt and enlarged 1892-1915 on the most modern lines at a cost of over £144,000. There is a separate ophthalmic block of 33 beds, a separate children's block of 34 beds, and a special department for gynecological cases. There are three resident house surgeons and a resident house physician. There are also well-equipped orthopaedic, X ray, electrical, and Finsen light departments. Registered medical students are admitted to witness the medical and surgical practice on payment of 10 guineas annually.

ROYAL DEVON AND EXETER HOSPITAL, Exeter.—The hospital contains 200 beds, extending to 300 in 1922 (including special children's ward) and has a good library, museum, dissecting room, and post-mortem room. Attendance on the practice of this hospital qualifies for all the examining boards. There is also a Private Nursing Staff attached to the hospital. For particulars as to fees, &c., apply to the Matron. A new wing was added in 1897. Arrangements may be made by which gentlemen in practice desiring to increase their qualifications may have the use of the museum and library and other facilities and by which students may attend midwifery. A new Operating Theatre was opened in 1906 (the gift of Mrs. Neworthy of Newlands, Dawlish, Devon). The Electrical Treatment Department (the gift of Mrs. M. A. Sanders) was opened in 1907 by Lady Duckworth-King. A department was opened in 1917 for the treatment of genito-urinary diseases; there are three sessions per week, two for men at 3 P.M. and 7 P.M., and one for women at 3 P.M.

WEST OF ENGLAND EYE INFIRMARY, Exeter.—Secretary: Mr. W. W. Beer. The infirmary contains 64 beds. Students of the Exeter Hospital can attend the practice of the Eye Infirmary. Patients for the year ending Michaelmas, 1919, 2664. A ward is set aside for newly-born babies suffering from infectious eye diseases. The mothers are accommodated with their babies.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION, Gloucester.—This hospital, which was granted the title of "Royal" on the occasion of King Edward VII.'s visit to Gloucester in the year 1909, has 140 beds. Secretary: Captain G. Harford. In-patients, 1709; out-patients, 7000. An electrical and massage department has been established and venereal and neurological clinics opened. Also ear, nose and throat department.

NORTH STAFFORDSHIRE INFIRMARY, Hartshill, Stoke-on-Trent.—The New Infirmary, opened in 1869, is built on the pavilion plan, has accommodation for about 250 patients, including Children's wards, and a special department for the treatment of Diseases of the Eye, a special X Ray and Electrical Department, a special department for the treatment of Diseases of the Ear, Nose, and Throat, a special orthopaedic department, and venereal diseases clinics, so that there are excellent facilities for acquiring a practical knowledge of the profession. During the last six years the sum of £35,000 has been spent on new buildings and alterations. A new Out-patient Department, costing £12,000, a new Children's Ward of 30 beds, a new Pathological Department, and a second large Operation Theatre are amongst the structural improvements already completed. The whole institution is now equipped in a thoroughly up-to-date manner. Secretary and House Governor: Mr. W. Stevenson.

HULL ROYAL INFIRMARY, Hull.—This hospital contains 256 beds, and since its establishment in 1782 until the erection of the circular wards in 1907 has undergone steady additions and improvements. A branch convalescent home and sanatorium for consumption at Withernsea are special features of the charity.

LEICESTER ROYAL INFIRMARY, Leicester.—Instruction in the infirmary for first-year students is duly recognised by the various examining bodies. At the General Infirmary there are 230 beds, and at the Children's Hospital in connexion 70; total 300. A new wing containing 100 beds was recently opened by H.R.H. the Duchess of Argyll. A reconstruction scheme has been carried out, and £120,000 spent on bringing the accommodation of the institution to a modern standard of efficiency. This scheme has included the provision of two modern operating theatres, and a self-contained out-patients' department. The Children's Hospital has been reconstructed and enlarged by the addition of a third ward at a cost of £14,500. Open-air balconies on all three floors are a feature. A central sterilising department has been provided. Pathological Laboratories and post-mortem rooms have recently been opened at a cost of £11,000, also an orthopaedic out-patient department at a cost of £9,500, £5,000 of which was provided by the Freemasons of the province as their war memorial. The Nurses' Home is at present undergoing enlargement to 60 additional bedrooms. A new south-west wing, to contain 100 beds, has been approved by the Governors, and is shortly to be proceeded with. Funds are being raised for it.

foundation of a City University, and a splendid site has been presented by Mr. T. Fielding Johnson, J.P., an ex-chairman of the Royal Infirmary. There are eight resident salaried medical officers at the Infirmary—viz., four house surgeons, one house physician, one assistant house physician, and two dressers. Dressers are given an honorarium. House Governor and Secretary: Mr. Harry Johnson.

NORTHAMPTON GENERAL HOSPITAL, Northampton.—Two new wings were opened in 1904 and the old buildings entirely renovated and rearranged. The number of beds is 231, 24 of which are occupied by discharged disabled pensioners. Non-resident pupils are received and have every opportunity of acquiring a practical knowledge of their profession. The fee is £10 10s. Pupils can be received at any time. An up-to-date Pathological Laboratory has recently been erected.

NORFOLK AND NORWICH HOSPITAL, Norwich.—This hospital has at present 350 beds. There is a convalescent home at Cromer, and a large staff of visiting nurses is maintained. Since January last Post-graduate Courses have been held at this institution, and will be continued next year during January, February, March, and April. Secretary: Mr. Frank Inch.

NOTTINGHAM GENERAL HOSPITAL.—At the present time there are 233 beds available for civilian patients. The accommodation of sick and wounded soldiers from overseas was a great feature at this hospital, which is fully equipped in every branch of medicine and surgery.

SOUTH DEVON AND EAST CORNWALL HOSPITAL, Plymouth.—This hospital contains 183 beds (12 of which are for Venereal Diseases in a separate building). There is also an Out-patient Venereal Diseases Clinic. There is a Pathological Laboratory, Special Departments for X ray and Fluor light, an Out-patient Orthopaedic Clinic under the Ministry of Pensions, also a civil Orthopaedic Department. Pensioners are also received as in-patients. The Hospital is a centre for the treatment of Tropical Diseases.

ROYAL HOSPITAL, Portsmouth (founded 1847).—The number of beds is 169. The hospital has X Ray and Massage Departments. The hospital is a preparatory School of Medicine and Surgery; the attendance of pupils at this hospital is recognised by the Examining Boards. Particulars of the Secretary at the hospital.

ROYAL BERKSHIRE HOSPITAL, Reading.—This hospital, which contains 220 beds, has been recently enlarged, the additions including a new Out-patient Department, a Casualty Department, an X Ray Department, Electro-Therapeutic and Massage Department, a Laboratory, an Eye Theatre, and Eye Wards.

SALISBURY GENERAL INFIRMARY, Salisbury.—This hospital contains 145 beds. In-patients, 123 daily average; out-patients, 620, including ophthalmic cases 253 and X ray cases 619; attendances on 5903 casuals. Secretary: Mr. B. B. Smith.

ROYAL SALOP INFIRMARY, Shrewsbury.—This hospital has 160 beds. In-patients, 1337; out-patients, 1521; out-patients' attendances for the year, 17,613. A site has been purchased adjoining the present Infirmary structure, and it is proposed to erect an annexe for children thereon. Secretary: Mr. Alfred Sugden.

ROYAL SOUTH HAMTS AND SOUTHAMPTON HOSPITAL, Southampton.—This hospital contains 130 beds. In-patients, 2112; out-patients, 9502. Secretary: Mr. T. A. Fisher Hall.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—This hospital has 87 beds. In-patients, 823; out-patients, 2269. Secretary: Lieutenant A. E. Collins.

ROYAL HAMTS COUNTY HOSPITAL, Winchester.—This hospital has 160 civilian beds. Secretary: Mr. Herbert Maizen.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL, Wolverhampton.—There are 210 beds. Special Departments for Children, Gynaecology, Ear, Throat, and Nose Diseases, Electro-therapeutic and X ray, Venereal Disease, and Pathological Departments. There is an excellent library. The resident officers are a resident medical officer and three house surgeons. Pupils are allowed to witness the whole of the practice of the hospital and to be present at operations and have every opportunity of acquiring a

practical knowledge of their profession. A course of Practical Pharmacy is given by the dispenser. Fees on application. Applications should be made to the Secretary of the Medical Committee.

WORCESTER GENERAL INFIRMARY, Worcester.—This hospital has 132 beds (temporarily reduced to 70). Pupils are taken by members of the Honorary Medical and Surgical Staff. Number of operations last year 893. New X Ray and Electrical Departments have been erected and are now in use. Additional accommodation for the Honorary Staff and Out-patients and also an Outdoor Shelter in connexion with the Children's Ward have been built as a memorial to King Edward VII. In-patients, 900; out-patients, 2980. Secretary: Mr. E. J. Holland.

YORK COUNTY HOSPITAL, York.—This hospital contains 186 beds. There are balconies for outdoor treatment and two installations of X Ray apparatus. A Venereal Diseases Clinic is held.

SCHOOL OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—The subjects of the Qualifying examination of the Pharmaceutical Society are:—Part 1: (a) Chemistry; (b) Physics; (c) Botany. Part 2: (a) Materia Medica; (b) Pharmacy, including Posology and the Translation and Dispensing of Prescriptions; (c) The law relating to the keeping, selling, and dispensing of poisons and poisonous substances. Fee, 12 guineas; for each subsequent examination after failure, 3 guineas. The advanced or Major examination (for registration as "pharmaceutical chemist") includes botany, chemistry and physics, practical chemistry, and materia medica. Fee, 3 guineas. The inaugural address will be delivered on Wednesday, Oct. 6th. Medical students are admitted to the lectures and laboratory work in any or all the courses. Certificates of instruction in this school are received by the Conjoint Board of the Royal Colleges and by the University of London. As we announced in our issue of August 21st, p. 425, courses are now instituted in technical schools to prepare students for the examinations of the Pharmaceutical Society. Application for admission to the school, or for further information, may be made to the Dean, Professor Greenish, 17, Bloomsbury-square, London, W.C.1.

II.—SCOTLAND. THE UNIVERSITIES.

UNIVERSITY OF EDINBURGH.

Four Degrees in Medicine and Surgery are conferred by the University of Edinburgh—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.). The degree of Bachelor of Surgery cannot be conferred on any person who does not at the same time obtain the degree of Bachelor of Medicine, and similarly the degree of Bachelor of Medicine is not conferred on any person who does not at the same time obtain the degree of Bachelor of Surgery.

No one is admitted to the degrees of *Bachelor of Medicine* and *Bachelor of Surgery* who has not been engaged in Medical and Surgical study for five years. No course of lectures will be allowed to qualify unless the lecturer certifies that it has embraced at least 100 lectures, or 50 lectures, as may be required by the regulations, and that the student has also duly performed the work of the class.

Candidates for the degrees of M.B. and Ch.B. must have attended for at least three academic years the medical and surgical practice either of the Royal Infirmary, Edinburgh, or of a general hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons. They must have attended Clinical Surgery during a course or courses extending over not less than nine months, and courses of instruction in all the subsidiary subjects. They must have personally conducted, under the superintendence of a registered medical practitioner, 23 cases of labour at least.

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations have effect:—Two of the five years of medical study must be spent in the University of Edinburgh. The

remaining three years may be spent in any University of the United Kingdom, or in any Indian, Colonial, or Foreign university recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court. Of the subjects of study—viz., Anatomy, Practical Anatomy, Chemistry, Practical Chemistry, Materia Medica, Physiology, Practical Physiology, Practice of Medicine, Surgery, Midwifery and Diseases of Women, Pathology, Practical Pathology, Physics, Botany, Zoology, Medical Jurisprudence, and Public Health—not less than one-half must be taken in the University of Edinburgh, which corresponds to the two years above referred to.

Women are admitted to graduation in medicine under practically the same conditions as men.

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery is £23 2s., and the proportion of this sum to be paid by a candidate at each division of the examination shall be as follows—viz.: For the First Division of the Examination (Botany, Zoology, Physics, and Chemistry), £6 6s.; for the Second Division (Anatomy and Physiology), £5 5s.; for the Third Division (Pathology and Materia Medica and Therapeutics), £4 4s.; and for the Final Division (Surgery and Clinical Surgery, Medicine and Clinical Medicine, Midwifery, Clinical Gynecology, and Forensic Medicine and Public Health), £7 7s.

Bachelors of Medicine and Bachelors of Surgery may proceed to the degrees of *Doctor of Medicine and Master of Surgery* after they have spent one year in the medical or surgical wards respectively of a hospital, or the Military or Naval Medical Services, or in scientific work bearing directly on their profession, or two years in practice other than practice restricted to surgery. In each case an examination must be passed and a thesis submitted for approval of the Faculty. The fee to be paid for the degree of M.D. is £15 15s., and the fee to be paid for the degree of Ch.M. is £15 15s.

A diploma in Tropical Medicine and Hygiene (D.T.M. and H.) is granted to graduates in Medicine and Surgery of the University of not less than six months' standing, and to Registered Medical Practitioners who, having resided in a tropical country, may be approved by the Senatus, on the recommendation of the Faculty of Medicine.

Diploma in Psychiatry.—Courses of instruction have also been instituted for a Diploma in Psychiatry, open to all legally qualified Medical Practitioners who conform with the Regulations. There shall be two examinations for the Diploma, the first comprising the subjects of Anatomy of the Nervous System; Physiology, Histology, and Chemistry of the Nervous System; Pathology of the Brain and Nervous System; Psychology, Lectures, and Demonstrations; and the second examination comprising the subjects of Clinical Psychiatry, Clinical Neurology, Experimental Psychology, Advanced Course in one of the subjects of Part I. (including Advanced Bacteriology). The fee for each examination shall be £6 6s.

Diploma in Public Health (D.P.H. Univ. Edin.).—Courses of instruction have been instituted for a Diploma in Public Health. There are two examinations, the fee for each being £6 6s.

The University of Edinburgh is especially rich in scholarships and prizes in medical subjects. Full particulars can be obtained from the Dean of the Medical Faculty.

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, Edinburgh.—The number of students varies much in the classes and subjects. It is within the limit to say that before the war about 1000 students availed themselves each session of the opportunity of attending the school. The lectures qualify for the University of Edinburgh and other Universities, the Royal Colleges of Physicians and Surgeons of London, Edinburgh, and Dublin, the Faculty of Physicians and Surgeons of Glasgow, and other Medical and Surgical and Public Boards.

The practical classes and laboratories will open and the lectures commence on Oct. 6th.

In accordance with the statutes of the University of Edinburgh one-half of the qualifying classes required for graduation may be attended in this school. The regulations require that the fee for any class taken for graduation in Edinburgh shall be the same as that for the corresponding class in the University. The whole education required for

graduation at the University of London may be taken in this school.

Special courses of instruction for dental students are also included in the curriculum of this school.

The minimum cost of the education in this School of Medicine for the Triple Qualification of Physician and Surgeon from the Royal Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow, including the fees for the Joint Examinations, is about £130, payment of which is distributed over the period of study. There is no composition fee.

Further particulars regarding the school, also its calendar, may be had on application to the Dean of the School, 11, Bristo-place, Edinburgh.

Clinical Instruction.—**ROYAL INFIRMARY, Edinburgh.**—This hospital has 921 beds and 42 cots for children. Courses of Clinical Medicine and Surgery are given by the physicians and surgeons to male and female students. Special instruction is given on Diseases of Women, Physical Diagnosis, Diseases of the Skin, Diseases of the Eye, the Ear, the Larynx, and the Teeth. Separate wards are devoted to Venereal Diseases, Diseases of Women, Diseases of the Eye, the Ear, Throat and Nose, and the Skin, and also to cases of Incidental Delirium or Insanity. There are also large and complete Medico-Electrical and X Ray and Bathing Departments. Post-mortem examinations are conducted in the anatomical theatre by the pathologist and his assistants, who also give practical instruction in Pathological Anatomy and Histology. The fees for hospital attendance are as follows—viz.: Perpetual ticket, in one payment, £12; annual ticket, £6 6s.; six months, £4 4s.; three months, £2 2s.; monthly, £1 1s. Separate payments amounting to £12 12s. entitle the student to a life ticket. No fees are paid for any medical or surgical appointment. The appointments are as follows: 1. Resident physicians and surgeons are appointed and live in the house free of charge. The appointment is for six months, but may be renewed at the end of that period by special recommendation. 2. Non-resident house physicians and surgeons and clinical assistants are appointed for six months. The appointment may be renewed for a like period by special recommendation. 3. Clerks and dressers are appointed by the physicians and surgeons. These appointments are open to all students and junior practitioners holding hospital tickets. 4. Assistants in the Pathological Department are appointed by the pathologist.

ROYAL HOSPITAL FOR SICK CHILDREN, Sciennes-road, Edinburgh.—This hospital contains 120 beds, and is fitted with every modern improvement. A fully equipped out-patient department (medical and surgical) is conducted daily in a building adjoining the hospital. Systematic courses of instruction, which qualify for graduation in the Edinburgh University and elsewhere, are given from time to time throughout the year by the staff. Students may enter at any time. Full particulars can be obtained from the Registrar at the hospital.

EYE, EAR, AND THROAT INFIRMARY OF EDINBURGH, 6, Cambridge-street, Lothian-road.—Clinical Lectures and Instruction are given in this institution, which is open at 1 o'clock daily for outdoor patients for Eye Diseases; Mondays, Thursdays, and Saturdays at 12 noon, and Tuesdays and Fridays at 4 p.m. for outdoor Ear, Nose, and Throat Patients. Special Practical Ophthalmoscopic Classes by arrangement. Patients whose diseases require operations or more than ordinary care are accommodated in the house. Secretary: Mr. J. P. Watson, W.S., 33, Charlotte-square.

Post-Graduate Instruction.—In connexion with the University and Royal Colleges short advanced courses for Graduates will be held during the Summer and Autumn Terms and the Summer Vacation provided a certain minimum number of Graduates enter for them, and, in certain courses, a maximum limit will also be imposed. The courses will be conducted by teams of teachers, and the following subjects will be included: Clinical Therapeutics, Tuberculosis, Diseases of the Blood, Diseases of the Renal System, Diseases of the Alimentary System, Diseases of the Circulatory System, Diseases of the Ductless Glands, Abdominal Surgery, Genito-Urinary Surgery, Surgery of Children, Clinical Gynecology and Clinical Obstetrics,

Child Welfare, Diseases of the Larynx, Ear, and Nose, Ophthalmoscopy and Errors of Refraction, Venereal Diseases, Advanced Bacteriology, Advanced Medical Anatomy, Advanced Surgical Anatomy. Arrangements will also be made, if necessary, for special instruction in Antenatal Maternity Work, Psychiatry, and Dermatology. Particulars in regard to the courses—dates of commencement, fees, &c.—may be had on application to the Honorary Secretary, Post-Graduate Courses in Medicine, University New Buildings, Edinburgh.

UNIVERSITY OF GLASGOW.

The University of Glasgow is both a teaching and a degree-granting body, but admits to graduation only candidates whose preliminary examination and course of study conform to its own regulations. Within certain limits instruction given by recognised medical schools and teachers may be accepted, but not less than one-half of the subjects other than clinical must be taken in this or some other recognised university, and at least two years of the course must be taken in Glasgow University. Six degrees, open both to men and women, are conferred: M.B. and Ch.B. (always conjointly), M.D. and Ch.M.; B.Sc. in Public Health; D.Sc. in Public Health; and B.Sc. in Pharmacy. A Preliminary Examination must be passed in (1) English, (2) Latin, (3) Elementary Mathematics, and (4) Greek, or French, or German, or Italian, with possible options to students whose native language is not English. Candidates taking the University preliminary examination are not obliged to pass in all the four subjects at one examination, but must do so at not more than two occasions.

For the degrees of M.B. and Ch.B. a curriculum of five years is required. The candidate must, during his curriculum, have attended a course or courses of instruction in each of the following subjects of study, extending over not less than the number of terms specified in each case, and including such class examinations as may be prescribed in connexion with the several courses:—Chemistry (including Organic Chemistry), two terms; with Practical Chemistry, one term; Physics (with practical work), one term; Botany (with practical work), one term; Zoology (with practical work), one term; Anatomy and Practical Anatomy, five terms; Parasitology and Practical Physiology, three terms; Materia Medica and Therapeutics (together or separately), each subject, one term; Pathology and Practical Pathology, three terms; Medical Jurisprudence and Public Health (together or separately), each subject, one term; Midwifery and Diseases peculiar to Women and to Infants, two terms; Surgery, two terms; Medicine, two terms. Candidates must attend at least three years the Medical and Surgical Practice of a recognised hospital accommodating at least 50 patients and having a distinct staff of physicians and surgeons. At least nine months' hospital attendance is required on both Clinical Surgery and Clinical Medicine, and the student must have acted for six months as clerk in medical and dresser in surgical wards, and must have had six months' outdoor practice; he must also have attended a course of Mental Diseases and of Practical Pharmacy (25 meetings), must have been properly instructed in Vaccination at a public vaccination station, and must have attended at least 20 cases of labour and the Practice of a Lying-in Hospital. The University also requires further study in various special subjects.

There are four Professional Examinations, the first comprising Botany, Zoology, Physics, and Chemistry; the second comprising Anatomy and Physiology; the third comprising Materia Medica and Therapeutics and Pathology; and the fourth or final, comprising Medical Jurisprudence and Public Health, Surgery and Clinical Surgery, Practice of Medicine and Clinical Medicine, and Midwifery and the Diseases peculiar to Women and to Infants.

The degrees of M.D. (Doctor of Medicine) and Ch.M. (Master of Surgery) are higher degrees in Medicine and Surgery respectively, and candidates (not under 24 years of age) who have previously obtained the double bachelorship may be admitted to either M.D. or Ch.M. on completing the other course prescribed, including an examination in Clinical Medicine for M.D. and an examination in

Surgical Anatomy, operations on the dead body, and Clinical Surgery for Ch.M.

In 1919 new chairs were instituted in Bacteriology, Organic Chemistry, and Physiological Chemistry.

Fees.—The Fees for M.B. and Ch.B. are £23 2s. The class fee in each subject of the curriculum for M.B. and Ch.B. is £2 2s., £3 3s., or £4 4s., and the present fee for hospital attendance is £7. The fee for M.D. is £15 15s., and for Ch.M. £15 15s.

The great majority of the students take their hospital course at the Western Infirmary, or the Royal Infirmary, where clinical instruction is given by professors of the University and others. Clinical instruction on Fevers is given at Ruthill and Belvidere Hospitals, while special courses, largely of a practical nature and embracing work in Hospital or Asylum wards, are conducted by University Lecturers on the Ear, the Throat and Nose, Dermatology, Ophthalmology, Venereal Diseases, Tuberculosis, and Insanity. Queen Margaret College, sometime conducted as a separate institution for the higher education of women, was made over to the University in 1892, and in it medical classes for women are conducted under University professors and other lecturers appointed by the University Court, whilst for clinical instruction female students mostly attend the Royal Infirmary.

In this University Bursaries and Prizes to the annual amount of over £1000 are appropriated to students in the Medical Faculty, and there are also several Scholarships and Fellowships which may be held by medical students who have gone through the Arts course. A full list will be found in the University Calendar.

THE ANDERSON COLLEGE OF MEDICINE, Dumbarton-road, Glasgow, W.—Courses are given which qualify for all the licensing boards and for the Universities of London, Durham, Edinburgh, and Glasgow (the latter two under certain conditions). Candidates for the Licence in Dental Surgery can obtain the full medical curriculum in Anatomy, Chemistry, Physiology, Surgery, Practice of Medicine, and Materia Medica. The courses special to Dentistry are also conducted in the Anderson College of Medicine.

The buildings are situated in Dumbarton-road, immediately to the west of the entrance to the Western Infirmary, and adjoining the University. Extensive accommodation is provided for Practical Anatomy, Practical Chemistry, Practical Botany, Practical Zoology, Practical Physiology, Practical Pharmacy, Operative Surgery, and Public Health. Ample provision has also been made for the comfort of students.

Women students are admitted on the same terms as men.

The Carnegie Trust extends its benefactions to students of the Anderson College of Medicine. Full particulars may be obtained from Sir W. S. McCormick, the Carnegie Trust Offices, Merchants' Hall, Edinburgh.

Communications relating to the College to be addressed to the Secretary of the Medical Faculty, The Anderson College of Medicine, Glasgow, W. Communications relating to the Preliminary Examination in General Education to be addressed to Mr. Hugh Cameron, M.A., F.E.I.S., Educational Institute Office, 34, North Bridge-street, Edinburgh. Communications relating to the Triple Qualification to be addressed to Mr. Walter Hurst, Royal Faculty Hall, 242, St. Vincent-street, Glasgow.

The Winter Session will open on Friday, Oct. 15th, 1920.

ST. MUNGO'S COLLEGE AND GLASGOW ROYAL INFIRMARY.—The classes in St. Mungo's College qualify for the English, Scotch, and Irish Conjoint Boards and, under certain conditions, for the various universities, including the University of London. Students who have fulfilled the conditions of the Carnegie Trust as regards Scottish birth or extraction, age (16 years), and Preliminary Examination, are eligible for the benefits of this Trust during the whole course of their studies at St. Mungo's College. The classes are open to male and female students equally. The minimum fees for all the lectures, including hospital attendance, necessary for candidates for the Diplomas of the English or Scotch Colleges of Physicians and Surgeons, amount to £100. Further particulars can be obtained from a syllabus which may be procured free on application to the Secretary of the Medical Faculty, 86, Castle-street, Glasgow.

QUEEN MARGARET COLLEGE (Women's Department of the University).—This is an integral part of the University of Glasgow. The classes are taught by professors of the University and other lecturers appointed by the University Court, and it is governed by the University Court and Senate. The curriculum, regulations, and fees are the same as those of the male students, and the University degrees are open to women on the same conditions as to men. They have access to the University Museum and can borrow books from the University Library, besides having a library of reference in Queen Margaret College. The School of Medicine is a special feature of the College, and gives full preparation for the medical degrees of the University. In July, 1894, for the first time in the history of any Scottish University, women students graduated in medicine in Glasgow University. Over 300 women have now taken the degree of M.B., C.M., or M.B., Ch.B. of the University of Glasgow and 24 the degree of M.D. The women students attend classes in the various University Buildings at Gilmorehill, Queen Margaret College, the Royal Infirmary, and the Western Infirmary. Excellent facilities for clinical work are given in the Royal and Western Infirmaries, in the Maternity, Royal Sick Children's, and other hospitals. The Arthur Scholarship is open every third year to students of first year; other Bursaries are open in Arts and Medicine; and by an ordinance of the Universities Commissioners women are admitted to certain University bursaries, scholarships, and fellowships. The Winter Session will open on Oct. 18th, but owing to the pressure upon accommodation in classes no new students of Medicine are to be admitted until April, 1921. Applications for entrance at that date should be made before Feb. 1st, 1921.

ROYAL INFIRMARY, Glasgow.—The ancient connexion between the University of Glasgow and the Royal Infirmary was revived in 1911, when four University Chairs and several University Lectureships were established at the infirmary. St. Munro's College is situated in the infirmary grounds. The infirmary has, including the Ophthalmic Department, 700 beds. There are special beds and wards for diseases of women, of the throat, nose, and ear, skin, venereal diseases, burns and septic cases. The wards are open to Women Students. At the Out-door Department the attendances in 1919 numbered about 146,000. In addition to the large medical and surgical departments there are departments for special diseases—viz., diseases of women, of the throat and nose, of the ear, of the eye, of the skin; and of the teeth. Five-house physicians and 12 house surgeons, who board in the hospital free of charge, are appointed every six months. Clerks and dressers are appointed by the physicians and surgeons. As a large number of cases of acute diseases and accidents of a varied character are received these appointments are very valuable and desirable. There is a modern and fully equipped Electrical Pavilion, and year by year the latest and most approved apparatus for diagnosis and treatment has been added. The fees are as follows: (a) For hospital practice, including attendance at the out-door department, at the pathological department, post-mortem examinations, and the use of the museum: Perpetual ticket, £7; six months, £2 2s.; three months, £1 1s.; separate payments amounting to £7 7s. entitle the student to a perpetual ticket, on return of previous season tickets; (b) For Clinical Lectures, six months, £3 10s.; three months, £1 15s.; (c) Vaccination, £1 1s.; Pathology, £4 4s.; Bacteriology, £2 2s.

Post-graduate classes will be held during September in Clinical Medicine, Clinical Surgery, Clinical Gynaecology, Surgical Diagnosis, Urology, Auto-intoxications, Clinical Examination of Urine, Hematology, Diseases of the Skin, Venereal Disease, Diseases of Throat, Nose and Ear, and Electro-therapeutics, X Ray Therapy, and Diagnosis. The fee for attendance at each of these courses is £1 1s.; for any three of them, £2 2s. A Special Course on Diseases of the Eye will be held in the Ophthalmic Institution. Fee for this course £2 2s. Those desirous of joining any of these classes should communicate at once with Dr. J. Maxtone Thom, Superintendent.

GLASGOW WESTERN INFIRMARY.—This hospital adjoins the University of Glasgow. Number of beds upwards of 600. Special wards are set apart for Diseases of Women, Throat, Nose, and Ear, and for Affections of the Skin. In the out-patient department there are special clinics

for Diseases of Women and for Diseases of the Throat, Ear, Teeth, Skin, Venereal Disease, and Electro-therapeutics. The Clinical Courses are given by the physicians and surgeons, each of whom conducts a separate class, and students require to enter their names at the beginning of the session for the class which they propose to attend. Special instruction is given to junior students by tutors or assistants, and clinical clerks and dressers are selected from the members of the class. All the courses of clinical instruction are recognised by the University of Glasgow and the other boards in the kingdom. In the Pathological Department the course is both systematic and practical, also post-graduate courses, and extends through the winter and following summer; these are likewise recognised by the University for graduation. Eighteen resident assistants are appointed annually, without salary, from those who have completed their course. The fee for hospital attendance is £7, and the fees for clinical instruction are £3 3s. for the Winter Session and £2 2s. for the Summer Session. A Clinical Laboratory has been opened, and students receive laboratory instruction from the lecturer on clinical methods. Secretary: J. Matheson Johnston, C.A., 87, Union-street.

A School of Massage, Medical Electricity, and Swedish Remedial Exercises has been established to qualify for the Certificate of the Chartered Society of Massage and Medical Gymnastics.

ROYAL HOSPITAL FOR SICK CHILDREN, Yorkhill, Glasgow.

—This institution, which was founded in 1882, consists of: (1) a hospital at Yorkhill containing 250 cots built on an elevated and central site close to the University and opened in July, 1914; (2) a Dispensary, or Out-patient Department, in West Graham-street, opened in October, 1888; and (3) a country branch at Drumchapel, Dumbartonshire, containing 30 cots, opened in 1903. Children treated must not be over 12 years of age and suffering from non-infectious diseases. In the hospital about 5000 children are treated annually. In the Out-patient Department over 12,000 are treated annually, involving nearly 50,000 attendances. There are two lectureships in the University of Glasgow in connexion with the hospital, one on the Medical Diseases of Infancy and Childhood, and the other on Surgery and Orthopaedics in Relation to Infancy and Childhood. These lectureships are held by the Visiting Physician, Dr. Leonard Findlay, and the Visiting Surgeon, Mr. Alexander MacLennan. The lectures are both systematic and clinical, but particularly and chiefly the latter. Information with regard to clinical instruction, lectures, demonstrations, post-graduate study, &c., may be obtained from the Medical Superintendent.

GLASGOW ROYAL MATERNITY AND WOMEN'S HOSPITAL, Rottenrow.—The new hospital, which was opened in 1908, is in point of size the largest of its kind in Britain and has accommodation for 108 patients. A Maternity and Child Welfare Centre has been established in connexion with the hospital, consisting of a complete In-door and Out-door Ante-natal Department and an Infant Consultation Clinic. In 1919 2636 normal cases and 2316 abnormal cases were treated by the hospital in the In-door and Out-door Departments. Secretary: Mr. William Guy, 146, Buchanan-street. Full particulars as to fees and accommodation may be obtained from the House Superintendent at the Hospital.

ROYAL SAMARITAN HOSPITAL FOR WOMEN, GLASGOW.—This hospital, founded in 1886, is one of the largest purely gynaecological hospitals in Great Britain, possessing, as it does, over 90 beds. It offers excellent facilities for clinical instruction in the diseases peculiar to women, treating in the wards and in the out-patient department some 4000 cases per annum. The surgeons, four in number, visit the wards in the mornings. For further information application may be made at the Hospital, or to Thos. Macquaker, honorary secretary, 89, West Regent-street, Glasgow.

GLASGOW LOCK HOSPITAL, 41, Rottenrow.—The Hospital contains 83 beds. During 1919 364 patients were admitted to the wards; 14,187 visits were made by out-door patients at the Dispensary. Classes are held for the clinical instruction of medical students and practitioners. J. Neilson Gray, secretary and treasurer, 65, Bath-street, Glasgow.

GLASGOW OPHTHALMIC INSTITUTION, 126, West Regent-street (23 beds and six cots).—Clinical and systematic course of lectures for students during the winter and summer

essions. In-patients, 879; out- or dispensary patients, 13,918; total attendances, 31,031. Operations on Wednesdays and Saturdays. This institution is the Ophthalmic Department of the Royal Infirmary. Clinical instruction is given during both summer and winter sessions to men and women students attending the University. During September post-graduate courses will be held in connexion with the Glasgow Royal Infirmary. Secretary and Cashier: R. Morrison Smith, C.A., 135, Buchanan-street, Glasgow.

GLASGOW EYE INFIRMARY, Berkeley-street and Charlotte-street.—This institution, the largest of its kind in Scotland, was founded in 1824. The average number of new patients for the last ten years has been 27,106 and the total number of cases in 1919 was 25,462. The wards and dispensary are recognised by the University of Glasgow for the purpose of instruction in ophthalmology for graduation in medicine. A Venereal Centre is being established. Secretary and Acting Treasurer: Harold John Black, 88, West Regent-street, Glasgow. The medical session opens in October. A Post-graduate Class will be held.

GLASGOW HOSPITAL FOR DISEASES OF THE EAR, NOSE, AND THROAT, 27 and 28, Elmbank-crescent.—12 beds and three cots. New patients, 5508. Attendances at out-patient department 19,023. Admitted to in-door department 392. Clinical instruction is given in connexion with Dr. Connal's course on Diseases of the Ear at Anderson's College and Dr. Syme's course on Diseases of the Throat and Nose at the Western Medical School. A course of post-graduate study has been conducted by the staff of the hospital. Secretary: Mr. P. T. Young.

UNIVERSITY OF ST. ANDREWS (UNITED COLLEGE ST. ANDREWS AND UNIVERSITY COLLEGE, DUNDEE).

Four degrees in Medicine and Surgery are conferred by the University of St. Andrews—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), a Diploma in Public Health, and Diploma in Dental Surgery (L.D.S.). The whole curriculum may be taken at University College, Dundee, or the first two years of the course may be taken at St. Andrews and the remaining three years in Dundee. The degrees of M.B. and Ch.B. shall always be conjoined. Before commencing his medical studies each student shall pass a Preliminary Examination in (a) English, (b) Latin, (c) Elementary Mathematics, and (d) one of the following optional subjects: (a) Greek, (b) French, (c) German, (d) Italian, (e) any other approved Modern Language. A degree in Arts or in Science in any of the Universities of the United Kingdom and in some colonial and foreign universities shall exempt from the Preliminary Examination. The Preliminary Examination for graduation in Medicine and Surgery, Arts or Science, of the University of St. Andrews is accepted as equivalent to the Registration Examination required by the General Medical Council (the certificate to include the required subjects). Also the Final Examination for a degree in Arts or Science and the Final Examination for the Diploma of LL.B.

Degree of Bachelor of Medicine and Bachelor of Surgery.—Candidates must have been engaged in medical study for at least five years. In each of the first four years the candidate must have attended at least two courses of instruction in one or more of the subjects of study specified below, each course extending over a session of not less than five months, either continuous or divided into two terms, or, alternatively, one such course along with two courses, each extending over a session of not less than two and a half months. During the fifth or final year the candidate shall be engaged in clinical study for at least nine months at the Infirmary of Dundee or at one or more of such public hospitals or dispensaries, British or foreign, as may be recommended for the purpose by the University Court. The candidate must have received instruction in each of the following subjects of study, including such examinations as may be prescribed in the various classes—viz.: Anatomy, Practical Anatomy, Chemistry, Materia Medica, Physiology, Institutes of Medicine, Practice of Medicine, Surgery, Gynaecology and the Diseases peculiar to Women and Infants, Forensic Chemistry, Physics (including the properties of Solids, Liquids, and Gases, and the Radi-

ments of Sound, Heat, Light, and Electricity), Elementary Botany, Elementary Zoology, Practical Physiology, Practical Pathology, Forensic Medicine, and Public Health. The candidate must have attended for at least three years the Medical and Surgical Practice either of the Infirmary of Dundee or of a General Hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons and is recognised for the purpose by the University Court. Additional subjects of study are Practical Pharmacy, Mental Diseases, Practical Midwifery, Operative Surgery, Vaccination, Children's Diseases, Fevers, Ophthalmology, Diseases of the Ear, Throat, and Nose, Anesthetics, and Post-mortem Examinations.

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations shall have effect:—1. Two of the five years of medical study must be spent in the University of St. Andrews. 2. The remaining three years may be spent in any University of the United Kingdom or in any Indian, Colonial, or Foreign University recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court. Women are admitted to graduation in Medicine, subject to certain provisions.

Professional Examinations for the Degrees of Bachelor of Medicine and Bachelor of Surgery.—Each candidate will be examined both in writing and orally, and also clinically where the nature of the subject admits, in the following divisions—viz., first, in Botany, Zoology, Physics, and Chemistry; second, in Anatomy and Physiology; third, in Materia Medica and Pathology and Forensic Medicine and Public Health; and fourth, in Surgery, Clinical and Operative Surgery, Practice of Medicine and Clinical Medicine, and Midwifery and Gynaecology (Systematic and Clinical).

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery shall be 22 guineas, and the proportion of this sum to be paid by a candidate at each division of the examination shall be regulated from time to time by the University Court. The fee to be paid for the degree of Doctor of Medicine shall be 15 guineas, and for the degree of Master of Surgery 15 guineas. The whole medical curriculum can be taken in University College, Dundee, or the first two years in United College, St. Andrews.

For further particulars and details as to scholarships and bursaries application should be made to Professor Kynoch, Dean of the Medical Faculty, University College, Dundee.

UNIVERSITY COLLEGE, Dundee.—This College is one of the constituent colleges of the University of St. Andrews. In the medical buildings there are spacious and well-equipped laboratories. The complete medical curriculum can be taken in Dundee. For classes, fees, &c., see under University of St. Andrews.

ROYAL INFIRMARY, Dundee.—The Infirmary contains 403 beds, including special wards for the Diseases of Women, Children, Eye, Ear, and Throat, Skin, and for Obstetric cases. There is in addition an Extern Obstetric Department. There were during last year 17,118 out-patients and 834 home (maternity) patients. The Royal Infirmary offers facilities for practical work to students. Appointments: Six qualified Resident Medical Officers (Male or Female) are appointed every six months and one Obstetric Assistant. Clinical Clerks and Dressers are attached to the Physicians and Surgeons, and students are appointed as assistants in the Pathological Department. There are in connexion with the clinical courses Tutorial Classes in Medicine and Surgery. Instruction is also given in Practical Pharmacy and Materia Medica. Further information can be obtained from the Medical Superintendent.

UNIVERSITY OF ABERDEEN.

The University of Aberdeen grants four degrees in Medicine and Surgery—viz., Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Medicine (M.B.), and Bachelor of Surgery (Ch.B.).

Degrees of M.B. and Ch.B.—Before commencing his medical studies each student must pass a Preliminary Examination in (1) English, (2) Latin, (3) Mathematics, and (4) one additional language—Greek, French, German, Italian, or such other language as the Senatus may approve.

The curriculum for the degrees extends over a period of five years, during which attendance is required in the following subjects: Botany, Zoology, Physics, Chemistry (Systematic and Practical), Anatomy (Systematic and Practical), Physiology (Systematic and Practical), Materia Medica and Therapeutics, Practical Pharmacy, Pathology (Systematic and Practical), Medical Jurisprudence, Public Health, Surgery, Medicine, and Midwifery.

Candidates must attend for at least three years the medical and surgical practice of a recognised hospital; they must have attended courses of at least nine months in clinical medicine and clinical surgery, and have acted as clerk in the medical and dresser in the surgical wards of a hospital. Attendance is required on the practice of a dispensary or the out-practice of a hospital and also on courses in Mental Diseases, Fevers, Ophthalmology, Post-mortem examinations, Venereal Diseases, and other special subjects. The candidate is also required to have been properly instructed in Vaccination and to have attended at least 20 Midwifery cases.

The fee for the degrees of M.B. and Ch.B. amounts to £23 2s.

Besides the Royal Infirmary, students have the opportunity of attending the following institutions: City Fever Hospital, Sick Children's Hospital, General Dispensary, and Lying-in and Vaccine Institutions, Royal Lunatic Asylum, Ophthalmic Institution, &c.

Degrees of M.D. and Ch.M.—Candidates for either of these degrees must already hold the degrees of M.B. and Ch.B. of Aberdeen. A thesis has to be presented and an examination has to be passed in Clinical Medicine (or in some special Department of Medical Science) or Clinical Surgery, as the case may be.

A diploma in Public Health is granted by the University to graduates in Medicine of a University in the United Kingdom, after a special examination.

Application for further information should be addressed to the Secretary of the Medical Faculty.

Scholarships and Prizes.—In the Faculty of Medicine of the University of Aberdeen there are the following Bursaries, Scholarships, and Prizes:—Bursaries: about 15 Bursaries (competition and presentation) are open each year, of £15 to £30 per annum in value, most of them being tenable for three years. Scholarships: five Post-Graduate Scholarships, value £36 to £160 per annum. Prizes and Medals: 13 Gold Medals and Prizes for proficiency in special departments, &c.

Clinical Instruction is given in the Aberdeen Royal Infirmary (270 beds) by the physicians and surgeons on the staff.

ABERDEEN ROYAL ASYLUM.—Contains, with hospital attached to main institution and agricultural branch, about 950 beds. Clinical instruction is given to students during three months in summer. Clerk and Treasurer, Mr. A. Scott Finlay, 343, Union-street, Aberdeen.

SCOTTISH MEDICAL CORPORATIONS GRANTING DIPLOMAS.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

These Colleges have made arrangements by which, after one series of examinations, held in Edinburgh or Glasgow, or both, the student may obtain the diplomas of the three Bodies.

The three Bodies grant their Single Licences only to candidates who already possess legal qualifications in Medicine or Surgery. Copies of the Regulations for the Single Licence of any of the Bodies may be had on application to the respective secretaries.

Professional Education.—The candidate must produce certificates or other satisfactory evidence of having attended the following separate and distinct courses of instruction: Physics, three months; Elementary Biology, three months; Chemistry, six months; Practical or Analytical Chemistry, three months; Anatomy, during at least six months; Practical Anatomy, twelve months; Physiology, six months;

Practical Physiology, three months; Materia Medica, three months; Pathology (including Practical Pathology), nine months; Practice of Medicine, six months; Clinical Medicine, nine months; Principles and Practice of Surgery, six months; Clinical Surgery, nine months; Midwifery, three months; Gynaecology, one course of not less than 13 meetings; Diseases of Children, one course of not less than 13 meetings; Medical Jurisprudence and Public Health, three months. The certified attendance on lectures, demonstrations, and practical work must not be less than three-fourths of the total number of roll-calls. Every student undergoes a course of Practical Midwifery, but before attending at labours he is required to attend a course of lectures on Surgery and Midwifery and to hold the offices of Clinical Medical Clerk and Surgical Dresser. He must also attend for two and a half months instruction in Practical Pharmacy; the certificate to be signed by the teacher, who must be a member of the Pharmaceutical Society of Great Britain, or the superintendent of the laboratory of a public hospital or dispensary, or a registered practitioner who dispenses medicines to his patients, or a teacher of a class of Practical Pharmacy.

The student must attend for 27 months the Medical and Surgical practice of a public general hospital containing on an average at least 80 patients available for clinical instruction and possessing distinct staffs of physicians and of surgeons. He must act as Surgical Dresser and Medical Clinical Clerk for not less than six months in the wards in each case, and receive practical instruction in administration of anesthetics. He must attend for six months the practice of a public dispensary especially recognised by any of the above authorities, or the out-patient practice of a recognised general hospital or act for six months as pupil to a registered practitioner who either holds such a public appointment, or has such opportunities of imparting practical knowledge as shall be satisfactory to the co-operating authorities; this attendance should be made after the student has passed the First and Second examinations.

Candidates are also required to attend the following courses: Diseases and Injuries of the Eye, three months; Insanity, three months; Infectious Diseases, three months; Gynaecology, three months; Diseases of Children, three months.

The curriculum lasts for five years, the fifth year being devoted to clinical work.

There are four professional examinations:—

First Examination includes Physics, Chemistry, and Elementary Biology.

Second Examination includes Anatomy and Physiology and Histology; and candidates may be admitted to this examination at the end of the second year of medical study.

Third Examination includes Pathology and Materia Medica with Pharmacology.

Final Examination.—The Final examination shall not be taken earlier than the end of the fifth year of study and shall embrace the following subjects:—Medicine, including Therapeutics, Medical Anatomy, and Clinical Medicine; Surgery, including Surgical Anatomy, Clinical Surgery, and Diseases and Injuries of the Eye; Midwifery and Diseases of Women; and, if not passed previously, Medical Jurisprudence and Public Health, but it is optional to candidates who have passed the Third Examination to be admitted to the subject of Medical Jurisprudence and Public Health on lodging certificates of having attended the necessary course in that subject at any time; but the subjects of Medicine, Surgery, and Midwifery shall be taken together at any time after the end of the fifth Winter Session, provided that a period of 24 months has elapsed since passing the Second Examination. All candidates shall be subjected, in addition to the written and oral examinations, to clinical examinations in Medicine and Surgery, which shall include the Examination of Patients, Physical Diagnosis, the Clinical use of the Microscope, Examination of the Urine and Urinary Deposits, Surgical Appliances, Bandages, Surface Markings, &c. The fees payable for the Final Examination shall be—for the whole examination, £15, for re-entry after rejection, £5, and for the subjects of Medical Jurisprudence and Public Health when taken separately, £5, with £3 for re-entry in that subject.

There are four periods of examination annually: During the ensuing period, three in Edinburgh and one in

Glasgow, in 1920-21. The Registrar in Edinburgh is Mr. D. L. Edlie, 49, Lauriston-place, and the Registrar in Glasgow, Mr. Walter Hurst, 242, St. Vincent-street, to whom fees and certificates must be sent for the respective examinations, and from whom further particulars concerning fees can be obtained.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH: THE MEMBERSHIP AND FELLOWSHIP.

In addition to the diplomas granted by the Scottish Conjoint Board the Royal College of Physicians grants its Single Licence to candidates already possessing legal qualifications for professional practice.

The Royal College of Physicians of Edinburgh grants a *Membership* and a *Fellowship*.

Membership.—A candidate, who must be a Licentiate of a British or Irish College of Physicians, or a graduate in medicine of a University, approved by the Council, and 24 years of age, is examined in medicine, therapeutics, and in any branch of the departments of medicine specially professed, such as general pathology, psychology, public health, obstetrics, gynaecology, diseases of children, tropical medicine, or medical jurisprudence. The fee for the Membership is £36 15s., 15 guineas of which will be returned to any successful candidate who was already a Licentiate of the College at the time of qualifying for the Membership.

Fellowship.—The Fellows are selected from the ranks of the *Members*. The fee is £64 18s.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH: THE FELLOWSHIP.

The Royal College of Surgeons of Edinburgh also admits to the examination for its Single Licence any candidates who hold a Diploma in Medicine of any British, Indian, or Foreign university or of any British College of Physicians, or of the Society of Apothecaries of London or Apothecaries' Hall, Dublin, granted under the provisions of the Medical Act, 1836, whose preliminary examination and course of professional study is proved to be sufficient to fulfil the requirements of the College, or to those who have passed a full examination for any of the above. Female practitioners are admitted to the Licence of the College and now to the Fellowship, and the regulations apply to practitioners of either sex.

The Royal College of Surgeons of Edinburgh grants a diploma of Fellowship after examination to the holders of the surgical degrees or diplomas of such British examining bodies, as well as of the holders of such surgical degrees of the Universities of Canada, Australia, New Zealand, and the Indian Empire as are recognised by the College.

The Fellowship.—Candidates for the examination must be 25 years of age and must have been engaged in practice for at least two years. The examination is of a practical nature, partly written and partly *à viva voce*, and must include surgery and surgical anatomy, operative surgery, and clinical practice. One optional subject must also be taken, the range of these specialisms covering nearly every branch of medicine. The fee to be paid on entering for examination for Fellowship is £45, £10 of which is remitted to those who already hold the Licence of the College. Candidates rejected at the examination obtain repayment of fee less £10 retained for examination expenses. One month's notice of intention to appear for examination must be given by the candidate to Mr. D. L. Edlie, 49, Lauriston-place, Edinburgh, clerk to the College, together with credentials signed by two Fellows of the College, one of whom must be a resident in Edinburgh, otherwise a special application, with six testimonials, must be made to the President and the Council of the College.

THE ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

Like the preceding corporations, the Royal Faculty of Physicians and Surgeons of Glasgow grants a Fellowship and a Licence to holders of separate qualifications.

Fellowship.—The Fellowship of the Faculty is granted to holders in medicine or surgery, together with an

optional subject, which may be anatomy or physiology or be selected from any special branch of medicine or surgery. 14 days' notice must be given by the candidate of his intention to present himself to Mr. Walter Hurst, the Faculty Hall, 242, St. Vincent-street, Glasgow. The fee for the Fellowship is £30, £10 of which sum are returned to any successful candidate who already holds the Licence of the Faculty. An additional sum of £20 is required in the case of candidates resident within seven miles of Glasgow. In certain circumstances Fellows may be elected as a mark of distinction.

Licence.—The Licence of the Royal Faculty is granted as a separate qualification to qualified practitioners in Medicine after examination in surgery, including surgical anatomy and clinical surgery. The fee is 15 guineas.

SCOTTISH PROVINCIAL ANCILLARY SCHOOLS AND HOSPITALS.

The hospitals which are recognised by the Scottish Conjoint Board, as places where professional study for their diplomas can be pursued are all those institutions which feed the medical faculties of the universities. In addition the Scottish Boards recognise all the places which are recognised by the English Conjoint Board (see p. 451) and the Irish Conjoint Board (see p. 463).

III.—IRELAND.*

THE UNIVERSITIES.

UNIVERSITY OF DUBLIN, TRINITY COLLEGE (SCHOOL OF PHYSIO).

Matriculation.—In order to join the School of Physic students pass a matriculation examination. University students take the Entrance of Trinity College and a Junior Freshman Term or a special Medical Preliminary; Extern Students, any examination recognised by the General Medical Council. The winter courses begin on Oct. 1st.

Degrees in Medicine (M.B.), Surgery (B.Ch.), and Midwifery (B.A.O.).—Candidates for these degrees must be of B.A. standing and must be for at least five academic years on the books of the Medical School, reckoned from the date of matriculation. The Arts course may be taken concurrently with the Medical course, and the B.A. degree need not be taken before the final medical examinations, but the Medical degrees are not conferred without the Arts degree. The following courses must be attended:—

(1) Lectures—Botany, Zoology, Physics and Practical Physics, Systematic, Descriptive and Applied Anatomy, Chemistry and Practical Chemistry, Histology, Physiology and Practical Physiology, Practice of Medicine, Midwifery, Pathology, Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene, Surgery and Operative Surgery; (2) three courses of nine months' attendance on the Clinical Lectures of Sir Patrick Dun's or other recognised Hospital; (3) Practical Vaccination, one month's instruction; (4) Mental Disease, three months; (5) Practical Midwifery with Clinical Lectures, including not less than 20 personally conducted cases, six months; (6) Ophthalmic Surgery, three months. Three groups of examinations have to be passed. Preliminary Scientific Examination, including Physics and Chemistry, Botany, and Zoology. The Intermediate Medical, Part I. including Anatomy and Physiology, and Part II. including Applied Anatomy and Applied Physiology; and the Final Examination, which is divided into Part I., Materia Medica, Hygiene and Jurisprudence, and Pathology; and Part II., Medicine, including Clinical, Surgery, Midwifery, Gynaecology, Mental Diseases, Operations, and Clinical Ophthalmology. Part I. may be passed in the fourth year and Part II. completed at the end of the fifth year.

Doctor in Medicine.—A Doctor in Medicine must have passed all the qualifying examinations and must be a B.A. of three years' standing. He must also read and discuss a thesis before the Regius Professor of Physic.

Master in Surgery.—A Master in Surgery must be a Bachelor in Surgery of the University of Dublin or not

* The conditions in Ireland have probably interfered with postal arrangements, and from some of the Irish institutions we have been unable to get replies. The institutions are marked with an asterisk.

less than three years' standing, and must produce satisfactory evidence of having been engaged for not less than two years from the date of his registration in the study, or study and practice, of his profession. He must then pass a special examination.

Master in Obstetric Science.—A Master in Obstetric Science must be a Bachelor of two years' standing and produce evidence of having been engaged in the study of Obstetric Medicine and Surgery during two years. He is then required to pass a special examination.

Diploma in Gynecology and Obstetrics.—A post-graduate diploma is conferred upon registered medical practitioners who take a six months' course at the Rotunda Hospital, a six months' course in Trinity College, and then pass a special examination.

Bachelor in Dental Science and Master in Dental Science.—The regulations under which these degrees are awarded can be obtained by application to the Registrar of the School of Physic.

All Degrees and Courses of Instruction are open to women students.

Clinical instruction.—The hospital facilities for clinical instruction available in Dublin will be described below.

THE NATIONAL UNIVERSITY OF IRELAND.

Matriculation.—All students intending to proceed to the medical degree of the University of Ireland must pass a matriculation examination, the examination taking place in June and September in Dublin and at certain local centres. All students must pass in five subjects (three of which must be Irish, English, and mathematics). All students must pass in Irish except students not born in Ireland, and other students whose home residence shall have been outside Ireland during the three years immediately preceding their matriculation; but all such students will be expected to attend a course of instruction in Irish Literature and History prior to obtaining any degree in the University. The following are the subjects for examination:—1. Irish. 2. Latin or Greek. 3. French, German, Italian, Spanish, Portuguese, Welsh, or any other modern language approved by the Senate. 4. English. 5. Mathematics. 6. Latin, Greek, French, German, Welsh, Spanish, Italian, Portuguese, or any other modern language approved by the Senate. History and Geography (as a composite subject), Natural Philosophy, or Physics as an alternative, Chemistry, Botany, and for women candidates only, Physiology and Hygiene. Candidates who under the regulations are exempted from the necessity of presenting Irish as one of their subjects may present as their fifth subject either a second language or a second science subject. Students entering for degrees in Medicine or Dentistry, if already registered by the General Medical Council, may be accepted as matriculated students of the Faculty of Medicine on passing the matriculation examination in any faculty of the University.

The medical degrees granted are:—

M.D., B.Ch., and B.A.O.; and M.D., M.Ch., and M.A.O.—Printed forms of application for admission to any medical examination may be had from "The Registrar, The National University of Ireland, Dublin."

The Constituent Colleges of the National University of Ireland at which the full curriculum for medical degrees can be obtained are University College, Dublin; University College, Cork; and University College, Galway.

UNIVERSITY COLLEGE, DUBLIN.—The University and the College were created by the Irish University Act, 1908, and by Charters issued in December, 1908. Former students of the Cecilia-street School of Medicine who graduated in the Royal University may become graduate members of the new College. The constitution of the College, like that of the Constituent Colleges of Cork and Galway, provides for a governing body, an academic council consisting of professors and elected lecturers, a body of graduate members, and a body of student members matriculated in the University. The first professors and lecturers were appointed by the Dublin Commissioners Irish Universities Act, 1908.

Matriculation.—Almost all the students of the College are matriculated students of the National University of Ireland.

University Examinations in Medicine.—The First Examination includes Physics, Chemistry, Botany, and Zoology. The examination may be taken in two parts: Part I., Physics and Chemistry; Part II., Botany and Zoology. Honours may be obtained only when both parts are taken as one examination. The Second Examination includes Anatomy and Physiology. Both must be passed at the same time. The Third Examination includes Pathology, Medical Jurisprudence and Hygiene, and Materia Medica.

Degrees of M.B., B.Ch., and B.A.O.—The Examination in Medicine, Midwifery, Surgery, and Ophthalmology includes both the theoretical and the clinical branches. No student can enter for the M.B., B.Ch., or B.A.O. until the end of the fifth year when the curriculum has been completed. The course of study is as follows:—First year.—Winter: Anatomy and Practical Anatomy (required for the Second Examination), Chemistry, Practical Chemistry, and Experimental Physics (with Laboratory Course). Summer: Zoology, Practical Zoology, Botany, and Practical Botany. Second year.—Winter: Anatomy, Practical Anatomy, Physiology, and Practical Physiology (physical and chemical). Summer: Anatomy, Practical Anatomy, Physiology, and Practical Histology. Third year.—Winter: Pathology, Surgery or Medicine, Hygiene, Medical Jurisprudence, and Practical Pharmacy. Summer: Materia Medica and Therapeutics, and Practical Pathology. Candidates are also required to attend a General Hospital for nine months (winter and summer). Fourth year, or fourth and fifth years.—Winter: Medicine or Surgery (the subject to be that not taken in the third year), and Midwifery and Gynecology. Summer: Operative Surgery, Applied Anatomy, and Ophthalmology and Otology. Candidates are also required to attend a General Hospital for nine months (winter and summer), and to take instruction in Vaccination, and three months Fever Hospital. Fifth year.—If the Academic (Collegiate) Courses are taken as above, the Courses of the fifth year will be the following: Hospital Attendance, General Hospital, nine months; Clinical Ophthalmology and Otology, three months; Practical Midwifery and Gynecology, six months; Mental Diseases, to be attended at a Lunatic Asylum, three months. (Note.—Practical Midwifery and Gynecology may be taken in the fourth year after the Systematic Course of Midwifery, but it must not be taken concurrently with the period of attendance at Fever Hospital.) The degree of M.D. may be obtained either by examination or on published work.

Fees.—The fees for Courses may be obtained on application to the Registrar for the College publications.

Information concerning these, and the numerous scholarships and exhibitions of the College can be obtained from the Dean of the Faculty, Professor F. P. McLoughlin.

UNIVERSITY COLLEGE, CORK: THE SCHOOL OF MEDICINE.

—The building is provided with a very large, well-ventilated dissecting room supplied with electric light, with physiological, toxicological, pathological, and pharmaceutical laboratories, materia medica, anatomical and pathological museums, as well as a collection of surgical and obstetrical instruments and appliances. There are well-appointed physical, chemical, and biological laboratories, and a large natural history museum in the adjoining building, and part of the College ground is laid out as a botanical garden. The plant houses are well filled with plants and are open to the students in the class of Botany. The Library contains about 70,000 volumes and is open daily during term time to students. The Medical Museum occupies a large room erected at the northern end of the medical buildings. There are Students' Clubs for men and women students of the College and various athletic clubs, the last of these holding a public meeting once in each year in the Mardyke grounds.

All students who have been admitted as matriculated students are required to attend before the President and sign the Roll of Matriculated Students. Students who are candidates for degrees in the National University of Ireland must have passed the University or other recognised students must have passed a

UNIVERSITY OF DUBLIN.

Glasgow, in 1920-21. The Registrar in Edinburgh is Mr. D. L. Edie, 49, Lauriston-place, and the Registrar in Glasgow, Mr. Walter Hurst, 242, St. Vincent-street, to whom fees and certificates must be sent for the respective examinations, and from whom further particulars concerning fees can be obtained.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH:
THE MEMBERSHIP AND FELLOWSHIP.

In addition to the diplomas granted by the Scottish Conjoint Board the Royal College of Physicians grants its Single Licence to candidates already possessing legal qualifications for professional practice.

The Royal College of Physicians of Edinburgh grants a Membership and a Fellowship.

Membership. A candidate, who must be a Licentiate of a British or Irish College of Physicians, or a graduate in medicine of a University, approved by the Council, and 24 years of age, is examined in medicine, therapeutics, and in any branch of the departments of medicine specially professed, such as general pathology, diseases of children, public health, obstetrics, gynecology, diseases of the lungs, tropical medicine, or medical jurisprudence. The fee for the Membership is £36 15s., 15 guineas of which will be returned to any successful candidate who was already a Licentiate of the College at the time of qualifying for the Membership.

Fellowship. The Fellows are selected from the ranks of the Members. The fee is £54 18s.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH:
THE FELLOWSHIP.

The Royal College of Surgeons of Edinburgh also admits to the examination for the Single Licence any candidates who are a Diplomat in Medicine of any British College of Physicians, or of any British College of London Physicians, or of the Society of Apothecaries of London or of the Medical Act, 1936, whose preliminary examination of the Medical Act, 1936, is proved to be sufficient to fulfil the requirements of the College, or to those who have passed a full examination for any of the above. Female practitioners are admitted to the Licence of the College and to the Fellowship, and the regulations apply to practitioners of either sex.

The Royal College of Surgeons of Edinburgh grants a diploma of Fellowship after examination to the holders of the surgical degrees of diplomas of such British examining bodies, as well as of the holders of such surgical degrees of the Universities of Canada, Australia, New Zealand, and of the Indian Empire as are recognised by the College.

The Fellowship. Candidates for the examination must be 25 years of age and must have been engaged in practice for at least two years. The examination is of a practical nature, partly written and partly viva voce, and must include surgery and surgical anatomy, operative surgery, and clinical practice. One optional subject must also be taken, the range of these specialisms covering nearly every branch of medicine. The fee to be paid on entering for examination for Fellowship is £45, £10 of which is remitted to those who already hold the Licence of the College. Candidates rejected at the examination obtain repayment of fee less £10 retained for examination expenses. One month's notice is intended to appear for examination must be given by the candidate to Mr. D. L. Edie, 49, Lauriston-place, Edinburgh, clerk to the College, together with credentials, signed by two Fellows of the College, one of whom must be a resident in Edinburgh, otherwise a special application, with six testimonials, must be made to the President and the Council of the College.

THE ROYAL FACULTY OF PHYSICIANS AND
SURGEONS OF GLASGOW.

Like the preceding corporations, the Royal Faculty of Physicians and Surgeons of Glasgow grants a Fellowship and a Licence to candidates already possessing legal qualifications for professional practice. The Fellowship of the Faculty is granted to candidates in medicine or surgery, together with an

optional subject, which may be anatomy or physiology or be selected from any special branch of medicine or surgery. 14 days' notice must be given by the candidate of his intention to present himself to Mr. Walter Hurst, the Faculty Hall, 242, St. Vincent-street, Glasgow. The fee for the Fellowship is £30, £10 of which sum are returned to any successful candidate who already holds the Licence of the Faculty. An additional sum of £20 is required in the case of candidates resident within seven miles of Glasgow. In certain circumstances Fellows may be elected as a mark of distinction. **Licence.**—The Licence of the Royal Faculty is granted as a separate qualification to qualified practitioners in Medicine and clinical surgery. The fee is 15 guineas.

SCOTTISH PROVINCIAL ANCILLARY SCHOOLS AND
HOSPITALS.

The hospitals which are recognised by the Scottish Conjoint Board, as places where professional study for their diplomas can be pursued are all those institutions which feed the medical faculties of the universities. In addition the Scottish Boards recognise all the places which are recognised by the English Conjoint Board (see p. 451) and the Irish Conjoint Board (see p. 463).

III.—IRELAND.*
THE UNIVERSITIES.UNIVERSITY OF DUBLIN, TRINITY COLLEGE
(SCHOOL OF PHYSIOLOGY).

Matriculation.—In order to join the School of Physiology students pass a matriculation examination. University students take the Entrance of Trinity College and a Junior Freshman Term or a special Medical Preliminary; Extern Students, any examination recognised by the General Medical Council. The winter courses begin on Oct. 1st.

Degrees in Medicine (M.B.), Surgery (B.Ch.), and Midwifery (B.A.O.).—Candidates for these degrees must be of B.A. standing and must be for at least five academic years on the books of the Medical School, reckoned from the date of matriculation. The Arts course may be taken concurrently with the Medical course, and the B.A. degree need not be taken before the final medical examinations, but the Medical degrees are not conferred without the Arts degree. The following courses must be attended:—(1) Lectures—Botany, Zoology, Physics and Practical Physics, Systematic, Descriptive and Applied Anatomy, Chemistry and Practical Chemistry, Histology, Physiology, and Practical Physiology, Practice of Medicine, Midwifery, Pathology, Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene, Surgery and Operative Surgery; (2) three courses of nine months' attendance on the Clinical Lectures of Sir Patrick Dun's or other recognised Hospital; (3) Practical Vaccination, three months' instruction; (4) Mental Disease, three months; (5) Practical Midwifery with Clinical Cases, six months; not less than 20 personally conducted cases, three groups of examinations have to be passed. Preliminary of examinations, including Physics and Chemistry, Botany, and Zoology. The Intermediate Medical, Part I., including Anatomy and Physiology, and Part II., including Applied Anatomy and Applied Physiology; and the Final Examination, which is divided into Part I., Materia Medica, Hygiene and Jurisprudence, and Pathology; and Part II., Medicine, including Clinical, Surgery, Midwifery, Gynecology, Mental Diseases, Operations, and Clinical Ophthalmology. Part I. may be passed in the fourth year and Part II. completed at the end of the fifth year.

Doctor in Medicine.—A Doctor in Medicine must be a Bachelor in Surgery of the University of Dublin of not

* The conditions in Ireland have probably interfered with postal arrangements, and from some of the Irish institutions we have been unable to get replies. The institutions are marked with an asterisk.

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in the College, including a Biological Society. There are abundant facilities for research and Post-graduate work in the Chemistry, Physiology, and Pathology departments. There are ample facilities for Women Students. Further information can be obtained from the Registrar of the College.

Clinical Instruction is given in the Galway Hospital and in the Galway Union and Fever Hospitals, containing on an average 200 patients.

Galway County Hospital (62 beds).—Founded by Act of Parliament.

Galway Union and Fever Hospitals (150 beds).—Clinical instruction is given in these hospitals to the Medical Students of University College, Galway. The regulations for Scholarships tenable in the College, and the regulations for degrees and for courses can be obtained from Messrs. O'Gorman and Co., Galway.

QUEEN'S UNIVERSITY OF BELFAST.

There are six degrees in the Faculty of Medicine of the University—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (B.Ch.), Bachelor of Obstetrics (B.A.O.), Doctor of Medicine (M.D.), Master of Surgery (M.Ch.), and Master of Obstetrics (M.A.O.). The University also grants a Diploma in Public Health, particulars of which will be found in the University Calendar. The degrees of M.B., B.Ch., and B.A.O. are the primary degrees in the Faculty of Medicine, and are conferred at the same time and after the same course of study. No student is admitted to the final examination for these degrees until he has shown: (1) that he is a matriculated student of the University; (2) that he has completed the prescribed course of study in the Faculty of Medicine extending over a period of not less than five academic years from the date of his registration as a student of Medicine by the General Council of Medical Education and Registration of the United Kingdom; (3) that he has passed the several examinations prescribed; (4) that he has attended in the University during three academic years at least the courses of study prescribed for such degrees (the Senate may accept, for not more than two academic years of the required five, courses of study pursued in any other University or School of Medicine approved by the Senate); and (5) that he has attained the age of 21 years. Every candidate for admission as a matriculated student of the University shall pass such Matriculation Examination or fulfil such other test of fitness as may be prescribed by the Senate, which may prescribe the conditions under which students who have passed the Matriculation or Entrance Examination of any other University or College approved for that purpose (or who have fulfilled such other test of fitness as may be prescribed) may be exempted from passing the Matriculation Examination of the University. For information as to Scholarships and Prizes inquiry should be made of the Secretary of the University.

Primary Degrees of M.B., B.Ch., B.A.O.—All candidates for these degrees must satisfy the examiners in the subjects of four examinations known as the First, Second, Third, and Fourth Medical Examinations respectively.

The First Medical Examination.—The subjects of this examination are Chemistry (Inorganic and Organic), Experimental Physics, Botany and Zoology. The examination will be divided into two parts which may be taken separately: I., Chemistry and Physics; II., Botany and Zoology.

The Second Medical Examination.—The subjects are Anatomy and Practical Anatomy, Physiology and Practical Physiology. Candidates who have previously passed the First Medical Examination may present themselves for this examination at the close of their second year.

The Third Medical Examination.—The subjects are: (1) Pathology and Practical Pathology; (2) Materia Medica, Pharmacology and Therapeutics; (3) Medical Jurisprudence; (4) Hygiene. Candidates who have previously passed the Second Medical Examination may present themselves for this examination at the close of the third year. Attendance on a course in any subject of the Third Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the First Medical Examination.

The Fourth Medical Examination.—The subjects are: (1) Medicine; (2) Surgery; (3) Midwifery; (4) Ophthalmology and Otolaryngology. This examination may be taken in two

parts: I., Systematic; II., Clinical, Practical and Oral. Candidates who have previously passed the Third Examination may present themselves for Part I. of the Fourth Examination at the close of the fourth year, provided that they have fulfilled the necessary requirements as to attendance, &c., on the courses of instruction in the subjects of examination. Candidates who have passed Part I. of this examination may present themselves for Part II. at the close of the fifth year, provided that they have fulfilled the necessary requirements as to hospital attendance on the various clinical courses in the subjects of examination. Parts I. and II. may be taken together at the close of the fifth year. Attendance on a course in any subject of the Fourth Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the Second Medical Examination.

Degrees of M.D., M.Ch., and M.A.O.—These degrees are not conferred until the expiration of at least three academic years, or in the case of graduates of the University in Arts or Science of at least two academic years, after admission to the primary degrees in the Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study, or been engaged in such practical work as may be prescribed. These degrees may be conferred by the Senate either (a) after an examination, which includes written, oral, clinical, and practical examinations; or (b) on the submission of a thesis or other evidence of original study or research, to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject thereof.

The Medical School.—The Donald Currie Chemical Buildings contain a lecture theatre, a preparation room, a chemical museum, a large class-room for elementary practical chemistry, laboratories for qualitative and quantitative analysis, rooms for water and gas analysis, dark room for photographic purposes and balance room, provided with all modern appliances. The Anatomical Department contains a large and well-lighted dissecting-room, a lecture-room, a professor's and demonstrator's room, a bone-room, and a laboratory for microscopic and photographic work. The Jaffé Medical Museum is in the same building. The Jaffé Laboratories for Physiology comprise a lecture theatre, laboratories for practical work in chemical physiology, histology, and experimental physiology, and in addition small private research rooms, including balance, galvanometer, and centrifuge rooms. The Musgrave Pathological Laboratory.—In this department opportunity is afforded for research in pathology and bacteriology. The department is in touch with most of the hospitals in Belfast, and there is an ample supply of material for investigation by graduates in morbid histology, clinical pathology, and the bacteriology of infectious diseases. A course in pathology or bacteriology is given to graduates, and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in the department for the Public Health Committee of the corporation in connexion with water-supply, sewage disposal, meat- and milk-supply, the diagnosis of cases of infectious diseases, &c. The certificate issued to members of the class in bacteriology qualifies for the D.P.H. degree. The Pharmaceutical Laboratory is fitted and equipped for the work of practically instructing students in the compounding and dispensing of medicines.

Clinical instruction.—The following institutions are recognised by the University as affording proper opportunities for clinical instruction: the Royal Victoria Hospital, the Mater Infirmorum Hospital, the Union Hospitals, the Belfast Hospital for Sick Children, the Belfast Maternity, the Ulster Hospital for Women and Children, the Ulster Eye, Ear, and Throat Hospital, the Belfast Ophthalmic Hospital, the Purdyburn Fever Hospital, and the Belfast District Lunatic Asylum.

Royal Victoria Hospital (300 beds).—Women students are now admitted as resident medical pupils the same as men.

Mater Infirmorum Hospital (200 beds).—Honorary Secretary Medical Staff: Mr. J. B. Moore.

Belfast Union Infirmary and Hospital (1600 beds).—Clinical courses are given biennially, and course for D.P.H. in Hospital. Intern. Venereal Clinic in Infirmary under

IRISH MEDICAL CORPORATIONS GRANTING DIPLOMAS.

Corporation scheme. Particulars may be obtained on application, as to classes, to Dr. McIlhish.
Hospital for Sick Children, Queen-street (52 beds).—Honorary Secretary, Medical Staff: John McCaw, M.D.
Incorporated Belfast Maternity Hospital, Townsend-street (32 beds). New Pre-Natal Clinics are being arranged in addition to the present ward clinics.
Ulster Hospital for Children and Women (44 beds).
Benn Ulster Eye, Ear, and Throat Hospital (30 beds).
Belfast Ophthalmic Hospital, Great Victoria-street (30 beds).—Practical demonstrations by the staff and occasional clinical lectures in the subjects of Ophthalmology, Otology, and Laryngology. Clinical instruction is given daily. Fee for three months £2 2s.

Belfast Fever Hospital. City Fever Hospital, Pardysburn (330 beds); Union Fever Hospital (200 beds). Clinical Classes are held during the winter and summer sessions. Post-Graduate (D.P.H.) Classes are also held.
Belfast District Lunatic Asylum (1000 beds).

IRISH MEDICAL CORPORATIONS GRANTING DIPLOMAS.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

The College issues its Licences in Medicine and in Midwifery to practitioners whose names appear on the Medical Register of the United Kingdom.
The Licence in Medicine.—The subjects of examination are: Practice of Medicine, Clinical Medicine, Pathology, Medical Jurisprudence, Midwifery, Hygiene, and Therapeutics.

The Licence in Midwifery.—Candidates must produce certificates of registration. A registered medical practitioner of five years' standing may be exempted from the examination by printed questions.

The Membership.—Examinations for Membership are held in February, June, and November. The fee for the examination is £21 to Licentiates of the College, or £36 15s. to non-Licentiates. Further particulars can be obtained from the Registrar of the Royal College of Physicians of Ireland, Kildare-street, Dublin.

The Fellowship.—Fellows are elected by ballot. Applicants must have been a Member of the College for at least one year and must have attained the age of 27 years. There is a fee of £35 in addition to a stamp duty of £25.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

The Licence in Surgery.—A candidate whose name is entered either on the Medical Register for the United Kingdom, the Colonial Medical Register, or the Foreign Medical Register of the year in which he presents himself for examination, and who satisfies the Council that he has passed through a course of study and Examinations equivalent to those required by the Regulations of Ireland and the Royal College of Surgeons in Ireland, preceded by the passing of an Examination in Arts recognised by the General Medical Council, may, at the discretion of the Council, be admitted to the Examination.

Candidates are examined in Surgery, Clinical Surgery, Operative Surgery on the subject, Surgical Appliances, and Ophthalmic Surgery.

Diploma in Midwifery.—A diploma in Midwifery is granted after examination to persons possessing a registrable qualification.

Fellowship Examinations.—Candidates for the Fellowship shall make application to the President and Council to be admitted to examination. They are required to pass two examinations—Primary and Final. Candidates may present themselves for the Final Examination immediately after passing the Primary part, provided they have complied with the necessary regulations. The subjects for the Primary Examination are: (a) Anatomy, including Dissection; (b) Physiology and Histology. The subjects for the Final Examination are Surgery, including

Pathology. For admission to the Final Examination the candidate must have passed the Primary Examination, and must be a Licentiate or Graduate in Surgery of a university or licensing body recognised by the General Medical Council; all such candidates must not be less than 25 years of age. Further particulars as to fees and conditions of examination can be obtained from the Registrar of the College, Stephen's-green, West Dublin.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND AND ROYAL COLLEGE OF SURGEONS IN IRELAND.

Every candidate for the Conjoint Examinations of the Colleges shall produce evidence of having before entering on medical studies passed a Preliminary Examination in general education recognised by the Royal Colleges. Each candidate before receiving his diplomas must produce a registrar's certificate or other satisfactory evidence that he has attained the age of 21 years.

Preliminary Examination.—The subjects for examination are identical with those prescribed for the Preliminary Examination by the General Council of Medical Education and Registration.

Professional Examinations.—Every candidate must pass four Professional Examinations—at the end of the first, second, third, and fifth years respectively of his professional studies. No candidate shall be admitted to the Final Qualifying Examination within three months of his rejection at the Final or Qualifying Examination by any other licensing body.

First Professional Examination.—Every candidate is required, before admission to the First Professional Examination, to produce evidence—(1) of having passed in the subjects of the Preliminary Examination; and (2) of having attended a course of—(a) lectures on Theoretical Chemistry, six months; (b) Practical Chemistry, three months; (c) Biology, three months; and (d) Physics. 2. Biology. The subjects of the First Professional Examination are the following:—1. (a) Chemistry; (b) Physics. 2. Biology. The fee for this examination is £15 15s.

Second Professional Examination.—Candidates are not admissible to this examination till they have passed in the subjects of the First Professional Examination, and they must produce evidence of having attended (a) anatomical dissections, six months; and Lectures on (b) Anatomy, six months; (c) Physiology, six months; (d) Practical Physiology and Histology, three months.

The subjects of the Second Professional Examination are the following:—(1) Anatomy; and (2) Physiology and Histology. The fee for this examination is £10 10s.

Third Professional Examination.—Every candidate is required, before admission to the Third Professional Examination, to produce evidence of having passed the Second Professional Examination, and certificates of having attended courses of instruction in (a) the practice of a medico-chirurgical hospital for nine months; (b) Pathology—(1) Systematic, (2) Practical, three months each; (c) Materia Medica, Pharmacy, and Therapeutics, three months; (d) Forensic Medicine and Public Health, three months. The subjects for the Third Professional Examination are the following:—(1) Pathology; (2) Materia Medica, Pharmacy, and Therapeutics; (3) Public Health and Forensic Medicine. The fee for this examination is £9 9s. Clinical instruction in Ophthalmic and Aural Surgery, three months. The examination in Ophthalmic and Aural Surgery may be taken immediately after passing the Third Professional Examination.

Final Professional Examination.—Before admission to the Final Examination candidates must have passed the Third Professional Examination and produced evidence of having attended in Division I. the practice of a medico-chirurgical hospital for two periods of nine months each (unless such evidence has been previously produced for admission in Division II.); the practice of a recognised clinical hospital or the fever wards of a recognised clinical hospital, three months; clinical instruction in Mental Diseases, one month (12 attendances); lectures on Medicine, three months at a recognised medical school; of the duties of medical clinical clerk in a hospital, for three months; of having attended a

This list of the institutions recognised by the Conjoint Board of Ireland is supplemented in the regulations of the Colleges by those hospitals mentioned as recognised institutions in Scotland and England. The recognised facilities for clinical instruction in Belfast, Cork, and Galway have been described in connexion with the Belfast and National Universities.

National University and Royal Colleges of Surgeons of England, Ireland, and Scotland.

Further information will be supplied by the Hon. Secretary to the Medical Board.

JERVIS-STREET HOSPITAL, Dublin.—Founded 1718; rebuilt 1896. 139 beds. A new out-patient department has been completed and contains all modern requirements. Secretary: Mr. Kieran O'Dea.

MATER MISERICORDIÆ HOSPITAL, Dublin.—This hospital, the largest in Ireland, containing 382 beds, is open at all hours for the reception of accidents and urgent cases. Clinical instruction will be given by the Physicians and Surgeons at 9 A.M. daily. Ophthalmic Surgery will be taught in the Special Wards and in the Dispensary. Surgical Operations will be performed daily. Connected with the hospital are extensive Dispensaries, which afford valuable opportunities for the study of general Medical and Surgical Diseases, and Accidents. Instruction will be given on Pathology and Bacteriology. Three House Physicians, six House Surgeons, and 16 resident pupils will be elected annually. Dressers and Clinical Clerks will also be appointed, and certificates will be given to those who perform their duties to the satisfaction of the staff. Leonard Prizes will be offered for competition annually. For further particulars see prospectus. Certificates of attendance upon this hospital are recognised by all the Universities and licensing bodies in the United Kingdom. There is a Private Hospital for the reception of Medical and Surgical cases; also a Training School and a Home for Trained Nurses in connexion with the Hospital.

Terms of attendance.—Nine months, £12 12s.; six winter months, £8 2s.; three summer months, £5 5s. Entries can be made with any of the physicians or surgeons, or with the Registrar, Dr. Martin Dempsey, 35, Merrion-square. A prospectus containing in detail the arrangements for Clinical Instruction, Prizes, &c., may be obtained from the Secretary, Medical Board, Mr. H. Barniville, 9, Merrion-square.

MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY.—This hospital was founded in 1753 and now contains 166 beds available for clinical teaching. A building containing 40 beds for the isolated treatment of fevers is attached to the hospital. The certificates of this hospital are recognised by all the universities and licensing bodies of the United Kingdom. Medical Clinical Clerks and Surgical Resident Pupils and Dressers are appointed every three months, and House Surgeons and Clinical Assistants are elected annually. A prospectus giving the complete arrangements for the coming session may be obtained from the Honorary Treasurer of the Medical Board, Sir L. H. Ormsby, 92, Merrion-square, Dublin.

MERCHER'S HOSPITAL.—This hospital, founded in 1734, is situated in the centre of Dublin, in the immediate vicinity of the Schools of Surgery of the Royal College of Surgeons, the Catholic University School of Medicine, and within five minutes' walk of Trinity College. It contains 120 beds for medical and surgical cases, and arrangements have been made with the medical officers of Cork-street Fever Hospital whereby all students of this hospital are entitled to attend the clinical instruction of that institution and become eligible for the posts of Resident Pupil, &c. There is a large dispensary for out-patients. Students of the hospital are permitted to attend the gynaecological department, where they receive practical instruction. There are special wards for the treatment and study of children's diseases. During the past few years the hospital has undergone extensive alterations to bring it up to modern requirements.

Post-graduate and special courses are arranged for at any time. Certificates of attendance at this hospital are recognised by all the licensing bodies. Terms (three months' course) 6 guineas. Board 30s. per week. Medical men can take out Post-graduate courses by paying a fee of £3 3s. for the first month. If he wishes to remain a second month the fee is £2 2s. Clinical Lectures are given daily and Oral Lectures four times per week. Further particulars can be obtained from the Masters: Sir Andrew Horne, 94, Merrion-square, Dublin; Dr. Reginald J. White, 23, Merrion-square, Dublin; or from the Secretary, Holles-street, Dublin.

RICHMOND, WHITWORTH, AND HARDWICKE HOSPITALS (HOUSE OF INDUSTRY HOSPITALS), Dublin.—These hospitals contain 330 beds—130 for Surgical cases, 80 for Medical cases, 78 for Fever and other Epidemic Diseases, and an Auxiliary Wing of 42 beds. Their pecuniary position has been recently very precarious. A Resident Physician and a Resident Surgeon are appointed each half year and are paid for their services. 12 Resident Clinical Clerks are appointed each quarter and provided with furnished apartments, fuel, &c. These appointments are open not only to advanced Students but also to those who are qualified in Medicine and Surgery. The Dressers are selected from among the best qualified of the pupils without the payment of any additional fee. Women students are eligible for election as residents and special apartments are reserved for their use. For prospectuses apply to Mr. Adams McConnell, F.R.C.S.I., Hon. Secretary, 69, Fitzwilliam-square, Dublin.

ROTUNDA HOSPITAL, Dublin.—This institution is the largest combined gynaecological and maternity hospital in the British Empire. Over 4000 confinements attended annually. Students can take out their necessary gynaecological and midwifery practical courses. Appointments open to qualified practitioners as Assistant to the Master and Extern Assistants. Women students can reside in the hospital on terms similar to those for men. Fees for intern students: One month £6 6s., two months, £9 9s., three months £12 12s., six months £21, single months other than the first £4 4s. For further particulars apply to the Master.

ROYAL CITY OF DUBLIN HOSPITAL.*—Founded 1832; enlarged 1851; rebuilt 1893. 150 beds. There is a special wing for the treatment of fevers and contagious diseases founded by the late Mr. Drummond. Secretary: Mr. Edw. B. Armstrong.

ROYAL VICTORIA EYE AND EAR HOSPITAL, Dublin.—Established 1844. Incorporated 1897. 102 beds. In-patients, 1610; out-patients, 9386. Two house surgeons for Eye and one for Ear appointed annually.

DR. STEEVENS' HOSPITAL, Dublin.—Established 1720. 250 beds. Patients, 12,834. Secretary: Mr. R. J. Ogden.

ST. VINCENT'S HOSPITAL AND DISPENSARY, Dublin.*—Established 1834. 200 beds.

We take this opportunity of thanking the Deans and Secretaries of the various institutions for their kind co-operation in enabling us to bring the information contained in our Students' Number up to date.

THE CHARTERED SOCIETY OF MASSAGE AND MEDICAL GYMNASTICS.—Incorporated by Royal Charter, June 9th, 1920, and amalgamating the Incorporated Society of Trained Masseuses and the Institute of Massage and Medical Gymnastics. The Chartered Society has been formed for the purpose of affording protection to the professional members: by

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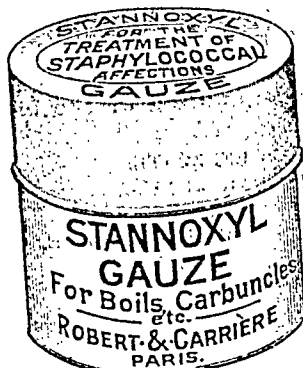
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In the Students' Number we set out, as usual, the patterns of medical training in the three divisions of the country, indicating in this way what has to be done by the aspirant before he can be admitted to our ranks; and under various special headings the attempt is made to show how varied are the openings which lie ahead and how genuine are the prospects of a successful as well as a useful life which attend the earnest student. A particular development in medical education to which we propose to call attention now is the establishment of clinical units in connexion with the great teaching hospitals, the immediate reference being to what has been happening at certain of the London medical schools. We have frequently referred to the gradual evolution of special departments of the medical curriculum, and this year a distinct step forward can be chronicled. For the institution of clinical units illustrates the development of the medical student from the apprentice who learned by watching his master into the undergraduate taught by university professors. This development has long remained arrested at a certain point, but if the dates of reform have lingered it must be remembered that under the older plans

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(Vide Presidential Address, British Pharmaceutical Congress, 10th July, 1918.)

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THE LANCET.

LONDON: SATURDAY, AUGUST 28, 1920.

Medical Training and the Clinical Units.

THE educational year opens in circumstances uncertain and involved for all the nations that on earth do dwell, and as it is the grand privilege of medicine to possess and cultivate universal inter-relations it follows that every moral and material trouble which falls upon man is reflected in medicine, and reflected as much in the training of the students as in the conduct of general practice and the progress of scientific research. All the training of the medical student during the next year must be carried on under the grave disabilities that the curriculum becomes steadily more costly, that those who pay for it possess for the most part less resources from which to find the money, and that the institutions, hospitals, schools, laboratories, and special clinics alike are suffering from the straitness of the times. No students can be so directly affected by the post-war conditions as those who desire to follow medicine. It may therefore be regarded as a triumph for our profession that never, so far as we know, have so many young persons felt an urgent call upon them to enter the ranks of medicine; and in this country the triumph is shared by the new Ministry of Health, for the readiness of the recruiting must indicate belief in the soundness of the promised reorganisation of the medical services of the country. Our young men and women are thinking, and their parents and guardians are sharing the thought, that the profession of medicine in the future, though sorely tried in the present, will emerge not only as a career whose nobility has been insisted upon to nausea, but as one whose orderly scheme will promote domestic, social, and international amelioration in the interests of the whole civilised world.

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NAVAL MEDICAL SERVICE.

THE life offered to officers of the Royal Naval Medical Service is one that ought to appeal to a large section of recently qualified medical men. More, we have here a career which, in our opinion, many students should set before them as an object. The reasons for this opinion, we may say, are very similar to those which might induce a young medical man to enter any of the sister Services, and there is no intention in what follows, under this or the subsequent headings, to pit one Service against the other or recruit in one direction more than in another. The terms of service and the particular regulations should suffice to give each man the necessary impetus for a decision. The regulations can be obtained from the Admiralty and should be studied strictly.

In the Royal Naval Medical Service the young medical officer obtains these advantages. He sees the world in congenial company and with an assured position, the pay is good, the pensions are commensurate, and the opportunities offered now for scientific work are real, while, if they are taken, promotion awaits the officer on grounds of professional merit.

The candidate who passes the examination for entry undergoes, as acting Surgeon-Lieutenant, a course of instruction at the Royal Naval College, Greenwich, in tropical medicine and hygiene. Further training is given at Haslar in naval hygiene, physical training, and other special branches of work. Seniority as a Surgeon-Lieutenant is determined by the sum-total of the marks obtained at the entrance examination and those on leaving Haslar. He can now hold an appointment as resident medical or surgical officer in a recognised civil hospital for a period of one year, which period will reckon to his credit for increase of pay, retired pay, and gratuity, provided that he completes four years' service in the Navy exclusive of the time so spent. He has thus every chance from the commencement of actual naval employ of being equipped practically as well as scientifically.

Rank of Surgeon-Lieutenant-Commander will be granted to surgeons at the expiration of six years from date of entry, and the point upon which stress should be laid is that special promotion can be made in cases of conspicuous professional merit, which is thus placed on a par with general service. Six years later the period of promotion to Surgeon-Commander is reached, after having passed the qualifying examination, when again special promotions can be made for conspicuous professional merit as well as for distinguished service; but promotions are limited in number, save, of course, for gallantry in action. This recognition of professional attainment should prove a very real incentive to progressive scientific work. The same principle prevails in the higher ranks. Promotions to Surgeon-Captain and later to Surgeon Rear-Admiral are made strictly by selection, but are confined to officers who prove themselves to be fitted, both professionally and as administrators, for this rank.

In this connexion we cannot do better than quote a communication from a Surgeon Rear-Admiral to whom it fell to interview a large number of medical officers who served with the Navy in a temporary capacity during the war. These men had had experience, and could give an opinion of the life, its scope and chances, though only from the point of view of war service. But they had experienced the most trying side of naval life, and their views would expose any objections, if such there are, against the career of a naval medical officer as not giving adequate scope for a full professional life.

The first satisfactory thing to mention is that those who thought scope was wanting were mostly young men, fresh from the schools, and undoubtedly deprived of freedom or initiative through the exigencies of war. The older men who had experience of civil practice looked at the situation more broadly, for they had standards of comparison which they could employ. They were able to comprehend better what the words "professional work" implied, and did not conceive their scope limited because in ministering to the wants of a selected community of healthy men living under strict discipline there was necessarily much routine and some monotony. They looked steadily at the facts, and found that professional work in a modern battleship includes a large variety of medical and surgical cases, both acute and chronic, while emergency operations, such as those for abdominal

conditions, may frequently occur. Naval life in these circumstances may lead to opportunities for putting into practice much of what has been learned in the clinical wards of a hospital. Further, the opening for preventive medicine is large and many-sided, while appointments to the large shore establishment enables medical officers to keep their work, of all kinds, up-to-date.

The introduction of new methods of preparation, new chemical explosives as well as the extraordinary behaviour of common articles under extraordinary conditions of stowage, furnish perpetual problems and surprises for the medical officer on board ship, and bring him into intimate connexion with his charges in a way that is particularly necessary considering the conditions of life. No medical officer can expect to succeed unless he secures the confidence of those committed to his charge, and the health lectures which he is bound to deliver will be much more fruitful if they are delivered to an audience which trusts him. Moreover, the delivery of official lectures does not end this side of the medical officer's duties. He must be ready to answer questions, sometimes of real acuteness, which are put to him by the modern blue-jacket, and he will find that his lectures will often afford a starting point of work that may develop into great professional interest. Thus, without his being necessarily a psychologist, his influence will be felt by both officers and men, until the wellbeing of the ship may be profoundly affected by the extent of his tact and skill; for example, small matters assume undue proportion under stress of confinement, and the medical officer should be quick to detect danger signs and warn his commanding officer. Numerous changes have been introduced during the last 20 years into the naval dietary, many of which were the outcome of representations and research by naval medical officers. The work wants carrying on, for much of it has gone to show that the food problem is very complicated. Every medical officer on board ship should make himself acquainted with food values and the human powers of assimilation under varying conditions of work and climate, and here there is ample scope for research. The modern requirements of gunnery and navigation necessitate precision in their use and have made ophthalmology a valuable subject for study in the Navy. The physical training of both officers and men is based on physiological axioms which are peculiarly the field of the medical officer; this training should be the subject of a watchful eye. There is no lack of scope here for professional work without making any reference to the vast problems which have to be faced when the medical officer has to arrange his particular department to the best advantage during or after an action. It is certain that he will not be able to do this unless in times of peace he gets himself ready by study. Lastly, there is the wide field of venereal and tropical disease.

The young medical officer need not be afraid that his work will be without scientific interest if he takes the opportunities offered him.

The rates of pay and pension are as follows:—

RATES OF PAY.

	Year of 365 days.	One day.
	£ s. d.	£ s. d.
Surgeon Rear-Admiral...	1916 5 0	5 5 0
Surgeon-Captain:		
On promotion	1176 5 0	3 5 0
After 3 years' seniority	1277 10 0	3 10 0
" 6 "	1383 15 0	3 15 0
" 9 "	1480 0 0	4 0 0
Surgeon-Commander:		
On promotion	821 5 0	2 5 0
After 3 years' seniority	894 5 0	2 9 0
" 6 "	967 5 0	2 13 0
" 9 "	1040 5 0	2 17 0
Surgeon-Lieutenant-Commander:		
On promotion	638 15 0	1 15 0
After 3 years' seniority	675 5 0	1 17 0
Surgeon-Lieutenant:		
On entry	438 0 0	1 4 0
After 3 years' seniority	529 5 0	1 9 0

On first appointment to the Service, Medical Officers will receive full pay from date of appointment, but subject to the provisions of Article 1347 of the King's Regulations, 1913.

Flag Allowances.

An allowance of 5s. 0d. a day in addition to full pay is granted to the Senior Medical Officer of a flagship bearing the flag of a Commander-in-Chief. An allowance of 2s. 6d. a day is granted to the Senior Medical Officer of a ship bearing other flags or broad pennants.

RATES OF PENSION.

Compulsory retirement will be as follows:—

(i) Surgeon Ret.—Admirals retire at the age of 60 with retired pay at the rate of £900 per annum plus £22 per annum for each year's service over 27 years counting for retired pay, subject to a maximum rate of £1010 per annum. If, however, less than 27 years' service counting towards retired pay is rendered, a deduction of £22 per annum is made for each full year wanting to complete that period, subject to a minimum of £300 per annum.

(ii) Surgeon-Captains retire at the age of 55. Maximum retired pay, £800.

(iii) Surgeon-Commanders retire at the age of 50. Maximum retired pay, £600.

(iv) Surgeon Lieutenant-Commanders and Lieutenants retire at the age of 45. Maximum retired pay, £450.

Subject to these maxima, the rates of retired pay for Surgeon-Captains, Surgeon-Commanders, Surgeon Lieutenant-Commanders, and Surgeon-Lieutenants are as follows:—

Age on retirement.	Retired pay.	Period of service (years) counting towards retired pay.	(A)		Age on retirement.	Retired pay.	Period of service (years) counting towards retired pay.	(A)	
			Addn.	Deductn.				Addn.	Deductn.
£	(p.a.)		£	(p.a.)	£	(p.a.)		£	(p.a.)
55	730	24	22	15	47	562	20	15	15
54	765	24	22	15	45	525	20	15	15
53	742	23	22	15	45	478	19	15	15
52	720	23	22	15	41	450	19	15	15
51	697	22	22	15	43	42	18	15	15
50	675	22	15	15	42	375	18	15	15
49	637	21	15	15	41	337	17	15	15
48	600	21	15	15	40	300	17	15	15

(P.a.) = per annum.

(A) Addition for each full year's service in excess of that specified in column 3 or deduction for each full year wanting to complete that period of service—addition or deduction limited to five years in each case.

ARMY MEDICAL SERVICE.

THE recent alterations in the conditions of service in the Royal Army Medical Corps, which constituted, as we said at the time, the greatest reform that has taken place in that Service for a generation, have well fulfilled their promise. For many reasons which are obvious and have been detailed on previous occasions, the Service can be thoroughly recommended to young medical practitioners. The Regulations should be obtained from the Army Medical Department, and carefully studied.

These are the things which the man who contemplates joining the Service should bear in mind. The rates of pay and allowances are good; the chances of seeing the world and the opportunities for post-graduate study are generous, and the work is nowadays varied, responsible, and interesting from a scientific point of view. At certain periods in his career the young officer is relieved from all other duties from six to nine months for the purpose of post-graduate study. During this period he is on full pay and the fees for his courses of instruction are paid by the State. His time is devoted to post-graduate work, and the leading clinical and scientific institutions are co-operating to secure that this post-graduate work shall be real and fruitful. At the same time in districts where the privilege would be of the most practical value opportunities are forthcoming for young officers to attend the clinical practice of large local general hospitals.

By a Royal Warrant issued in September, 1919, medical and combatant officers were placed on the same footing as regards retired pay, and the fact that medical officers enter the Service after a long and expensive training some five years later in life than combatant officers was overlooked. This inequality of treatment has now been rectified, with the result that a medical officer of 20 years' service or over gets £75 per annum more pension than a combatant officer with the same number of years' service.

Once again let us deal with the most frequently repeated criticism of the Service—namely, that administration eternally takes the *pas de science*. The Directorates in Pathology and Hygiene which were recently created in the R.A.M.C., and which we may say have proved a

marked success, form a complete answer to such criticism, however just it was in the past. This scheme of creating Directorates permits specially selected men to rise from all ranks to Major-General on the strength of their scientific work. Hitherto, a few notable men being excepted, the rule in the R.A.M.C. has been that, whatever a man's qualifications or abilities, on attaining the rank of Lieutenant-Colonel, he must be prepared to go off into administrative work and leave his scientific duties to his juniors. If he preferred to remain working in bacteriology, in preventive medicine and hygiene, or in tropical diseases, for example, he could do so, but, except in extraordinarily fortunate circumstances for himself, he would find that his devotion to science had cost him all chances of promotion in his Service, promotion being reserved for the administrative billets. The arrangement was wasteful as well as mortifying. How could the younger men be expected to preserve their interest in their scientific studies if such was the outcome? And how could their seniors be expected to remain in touch with the scientific developments in whose working out they no longer had any personal share? This now has all been changed, largely owing to the work of Sir John Goodwin, Director-General of the Service, with the assistance of Sir William Leishman and Sir William Horrocks. The change has its expression in these Directorates. Time was found during the last year of the war to prepare a scheme of reform, and to-day all up to and including the rank of Lieutenant-Colonel can draw specialist pay and hold appointments carrying allowances. The following substitutions for Articles 360 and 361 in the Royal Warrant for Pay Appointment, Promotion, and Non-effective Pay indicate the position. (See THE LANCET, Dec. 27th, 1919.)

Additional Pay and Charge Pay for Officers of the R.A.M.C.

The alterations, made under Army Order 411, 1919, became effective as from Jan. 1st, 1920:—

(1) In Article 360, for "officer under the rank of Lieutenant-colonel" appointed by Our Army Council as specialist ... 2s. 6d. a day," the following is substituted:—

"Officer not above the rank of Lieutenant-colonel, while acting as specialist in a post considered by Our Army Council to merit the grant of additional pay, according to subjects or groups of subjects as under, within a limit of 5s. a day:—

Operative Surgery, advanced; Medicine: Ophthalmology; Gynaecology and Midwifery; Dermatology, including Venereal Disease, 5s. daily.

Otolaryngology, and Rhinology; Radiology; Anaesthetics; Mental Diseases; Hygiene; Pathology, subjects other than above, at the discretion of Our Army Council, 2s. 6d. daily.

Officers granted temporary higher rank while holding appointments in the services of hygiene and pathology will not be eligible for additional pay as specialists while holding such temporary rank."

(2) The following is substituted for Article 361 (a):—

"(a) Officer in charge of a hospital.—If the number of equipped beds, as certified by the Deputy Director of Medical Services, exceeds—

500 beds ... 2s. 6d. daily. 500 beds ... 7s. 6d. daily.

150 " ... 5s. 0d. " 150 " ... 10s. 0d. "

Officer in charge of a medical or surgical division of a general hospital with not less than 500 beds—half the above rates."

Further, an officer, graded as a specialist, and appointed to the charge of a medical or surgical division of a general hospital may be allowed to retain his additional pay and to draw the rate of charge pay laid down for the officer in charge of a medical or surgical division of a general hospital, provided that the total of additional and charge pay so drawn does not exceed the rate of charge pay drawn by the officer in charge of the hospital. With this exception charge pay and additional pay as specialist will not be issuable concurrently. It may be here pointed out that the distinction between scientific and administrative work is largely verbal. Take the conduct of a large hospital—it is possible to separate the scientific routine which is designed to ensure progressive therapeutics from the administrative work which provides and maintains the premises and service, and selects and oversees the personnel?

Under the conditions enumerated the possibilities for good workers is very great in the R.A.M.C.; they will attain to positions of proper trust and emolument by scientific work. This should much improve recruiting among the officers of the R.A.M.C. But there will almost certainly follow arrangements by which all specialist in the medical service will receive higher consideration in the Royal Corps. Not only is there in the work of the Army Medical Department scope for original labour and research in tropical disease, in preventive medicine, and in bacteriology, as well as in the vast clinical field open to the specialist

in medicine, surgery, or gynaecology, in venereal disease, in ophthalmology, and so on, but it is proposed to develop a scheme whereby child welfare shall be undertaken systematically by the R.A.M.C. A scheme of this sort is already running successfully at Aldershot, and we see in this direction a fine opening for preventive medicine, and one which should bring the officers of the R.A.M.C. into touch with the soldiers in a valuable and intimate manner.

Lastly, we may remark that the appointment of a Consultant in Surgery, with the duty to visit all commands and advise the Director-General from inspection on the spot with regard to the conduct of hospitals, the scientific work in them, and the qualities of the personnel, should ensure a high standard of performance, if only because of the satisfactory feeling that good work will not by accident remain unnoticed. The present holder of the post is Colonel E. M. Pilcher, recently professor of surgery in the Royal Army Medical College.

RATES OF PAY AND PENSION.

The following table shows the

Total Emoluments: Royal Army Medical Corps.

Appointment.	Pay.	Rations.	Servant.	Married.				Un-married.				Total per annum.	
				Lodging.	Fuel and light (average).	Furniture allowance.		Lodging.	Fuel and light (average).			Married.	Unmarried.
Lieutenant ...	£ 1 2 0	d. 2 1	d. 2 0	s. 3 6	d. 1 0	s. 2 0	d. 2 3	s. 0 10	d. 0 10			£ 594	£ 532
Captain ...	1 7 0	2 1	2 0	4 6	2 0	2 0	2 3	3 0	1 2			722	643
After 5 years...	1 7 6	2 1	2 0	4 6	2 0	2 0	2 3	3 0	1 2			731	652
" 6 years...	1 8 6	2 1	2 0	4 6	2 0	2 0	2 3	3 0	1 2			740	661
" 10 years...	1 11 0	2 1	2 0	4 6	2 0	2 0	2 3	3 0	1 2			795	716
Major ...	1 15 0	2 1	2 0	4 6	2 0	2 0	2 3	4 0	1 7			865	815
Major, after 15 years ...	2 0 0	2 1	2 0	4 6	2 0	2 0	2 4	0	1 7			959	937
Lieutenant-Colonel ...	2 10 0	2 1	2 0	4 6	2 0	2 0	2 4	6	1 7			1142	1093
Lieutenant-Colonel, after 29 years ...	2 12 6	2 1	2 0	4 6	2 0	2 0	2 4	6	1 7			1187	1144
Lieutenant-Colonel, after 25 years ...	2 15 0	2 1	2 0	4 6	2 0	2 0	2 4	6	1 7			1233	1183
Colonel ...	3 5 0	2 1	2 0	5 6	2 10	2 0	2 5	6	1 10			1449	1335
Major-General ...	4 15 0	2 1	2 0	11 0	3 7	2 0	11 0	2 7				2147	2032

Charge pay (2s. 6d.-10s. per day) and specialist's pay (2s. 6d.-5s. per day)—i.e., from £25-£180 per annum—in addition for a considerable percentage of officers.

Retirement and Retired Pay.

The following are the rates of pension and retired pay:—

1. Retired pay will consist of two parts: (a) a service element based on the officer's total service; (b) a rank element for the rank from which the officer retires. An officer with less than 20 complete years' service will not be eligible for retired pay.
2. The scale will be as follows for each completed year of service.
 - (a) Service element.—£15 a year for each completed year of service.
 - (b) Rank element.—

Rank from which retired.	After completing 1 year's service in the rank.	After completing additional year's service.	Maximum rank element.
Major ...	£ 12	12	£ 120
Lieutenant-Colonel ...	18	33	240
Colonel ...	29	50	360
Major-General ...	40	60	540
Lieutenant-General ...	50	70	840
General ...	70	90	1260

The retired pay of an officer retiring with less than one complete year's service in the rank from which he retires will be assessed as if such he had retired from the rank below.

Maximum rates of retired pay (a) and (b) together:—

Captain and Subaltern ...	£ 500	Colonel ...	£ 800
Major ...	600	Major-General ...	1000
Lieutenant-Colonel ...	700	Lieutenant-General ...	1200

Officers with 20 and less than 20 years' service may be permitted to retire with a gratuity varying from £1000 to £2500.

INDIAN MEDICAL SERVICE.

THE Indian Medical Service differs from all the other State Services in that it combines the attractions of a military and a civil career. It is primarily a military service, and all officers on first landing in India are detailed for service with Indian troops in Indian military station-hospitals. After a period of military duty, which before the war varied from four to eight years, the majority of officers were transferred to the civil side. While in civil employ they constitute the war reserve for the Indian Army. During the great war practically all officers not occupying administrative posts or filling essential civil duties were called up for military service.

The possibilities of medical and surgical work and the opportunities for research in all directions which the Service affords have always proved of great attraction, though in recent years the Service has lost its former popularity in the medical schools, and for some time prior to the war competition among highly qualified European candidates was not keen. Under the changed conditions of India the pay and emoluments were insufficient, and the terms of service were out of date. The whole constitution and organisation of the Service has recently been under examination by a Medical Services Committee. The report of this Committee has not yet been published, but it is understood that its recommendations are such as seem likely to restore the Indian Medical Service to its former high position and prestige among the State Services. Meanwhile, the pay, pensions, and leave reserve have been substantially increased, whilst questions relating to furlough pay, passages, status of administrative officers are in process of satisfactory settlement. The Station Hospital system has been introduced and command allowances and second in command allowances have been granted for charge of hospitals. These reforms, now happily ensured, have completely altered the outlook. Young medical practitioners can now join the I.M.S. and be secure of a competency from the day they receive their commissions. We can therefore recommend the Service to them. The British Medical Association is using its best endeavours to stimulate and help in recruiting.

A great career is open to any young medical man with the proper qualifications and keen on his profession. During the first few years while on military duty the young officer becomes acquainted with and is trained in Indian military medical organisation. He acquires experience in dealing with the different races and castes which comprise the Indian Army. He learns the language and customs of the country. He familiarises himself with the practice of tropical medicine and surgery, and has leisure to pursue his further studies with time for recreation and sport in any direction his inclination may dictate. During these years he can make up his mind as to which branch of professional skill he wishes to devote special attention, and whether he is desirous of remaining in military employ throughout his service. Specialist appointments are available on both the military and civil sides.

On the civil side, and the majority of officers are civil surgeons in charge of districts and the civil district hospitals, the work is heavy and interesting, the bulk of it being surgery. There is no country in the world which offers better opportunity for the young surgeon once he has acquired the confidence and esteem of the inhabitants. Private practice is permitted, but it may be stated at once that the emoluments from this source, except in the Presidency or large towns, are generally negligible. Nevertheless, with the pay as it now exists, plus certain minor allowances, the civil surgeon is in a position to live reasonably in his earlier years, and can confidently expect, should his professional qualifications and reputation merit his preference, to be selected for the higher professional posts where a lucrative practice is obtainable. I.M.S. officers are eligible for the professorships at the Medical Colleges in Calcutta, Bombay, Madras, Lahore, and Lucknow in the various subjects comprising the medical curriculum. The bacteriological, sanitary and chemical examinations, work as alienists, and in the jail departments open out careers of a truly varied and valuable kind for those who wish to devote themselves mainly to scientific research or specialist work. The bacteriological laboratories and Pasteur institutes at Kasauli, Bombay, Coonoor

Shillong, and Rangoon are splendidly equipped with provision for research workers. In addition to the scales of pay laid down, allowances are granted for service in the above departments.

Under the study leave rules officers are entitled during their service to a year's study leave in England. This period counts as duty, and is in addition to furlough. It is granted on the basis of one month's study leave for each year's active service up to a total maximum of 12 months. Most officers take it in two periods of 6 months each, and add it on to their ordinary furlough. During the period of study leave they are at liberty to pursue courses of approved study in any country. They receive furlough pay plus an additional lodging allowance of 12s. a day. The opportunity thus provided for continuing post-graduate studies for a period of six months twice in his service is invaluable both to the individual and the State.

Accelerated promotion of six months to the rank of major is granted to officers for approved study or for obtaining the higher medical qualifications.

As regards leave, the Secretary of State has undertaken to increase the leave reserve to 25 per cent. and maintain the 2½ per cent. study leave in addition. These percentages when worked up to are considered ample.

The Secretary of State has further undertaken that officers of the I.M.S. on the military side will receive the same concessions as regards passages as combatant officers, while officers on the civil side will receive the same concessions, if any, as may be granted to other officers in employment.

The rates of basic pay and pensions are given below :—

NEW RATES OF PAY.

Rank.	Year of service.	Basic pay.	Overseas allowance.	Total basic pay and overseas allowance.	Rank.	Year of service.	Basic pay.	Overseas allowance.	Total basic pay and overseas allowance.
Lieut. ...	1	Rs. 500	Rs. 150	Rs. 650	Major ...	13	Rs. 850	Rs. 250	Rs. 1100
	2	500	150	650		14	950	250	1200
	3	500	150	650		15	950	250	1200
	4	650	150	800		16	1100	250	1350
	5	650	150	800		17	1100	250	1350
Capt. ...	6	650	150	800	Lieut.-Col. ...	18	1100	250	1350
	7	750	200	950		19	1250	250	1500
	8	750	200	950		20	1250	250	1500
	9	750	200	950		21	1500	250	1750
	10	850	200	1050		22	1500	250	1750
	11	850	200	1050		23	1600	250	1850
	12	850	200	1050		24	1600	250	1850
					Over 25	1700	250	1950	
					n S.L.	1550	250	1800	

* The present exchange value of the rupee is about 1s. 10½d.
S.L. = Selected List.

Charge allowances and second-in-command allowances for station hospitals will be admissible in addition to the above rates of pay at the following rates :—

(a) Charge Allowance.	Rs. per mensem.	(b) Second-in-Command Allowance.	Rs. per mensem.
1st class hospitals ...	240	1st class hospitals ...	120
2nd class hospitals ...	180	2nd class hospitals ...	90
3rd class hospitals ...	120		
4th and 5th class hospitals ...	120		

All existing general allowances paid to holders of professional and bacteriological appointments and certain other special classes of appointments on the civil side to be maintained.

Indian officers who have joined or may join the Service after Dec. 1st, 1918, will draw, as from Jan. 1st, 1920, pay in accordance with the basic scale set forth below, unless they are already drawing pay at a higher rate, in which case they will continue to enjoy the benefit of that rate for so long as they would otherwise have done; but they will not receive any further increment until it is due to them under the basic scale.

PENSIONS.

The pension rates as now revised give £400 a year after 17 years' service, increasing to £800 after 27 years' service. Formerly the rate was £300 after 17 years' service, increasing to £700 after 30 years' service.

Pension Rates.

After 17 years' service	£400	After 27 years' service	£800
" 18 "	430	" 28 "	830
" 19 "	460	" 29 "	860
" 20 "	500	" 30 "	900
" 21 "	540	" 31 "	940
" 22 "	580	" 32 "	980

Additional pensions for administrative officers :—

Colonel, after two years' active service as such ...	£125
After four years ...	250
Major-General, after one and a half years' active service as such ...	300
After three years ...	350

It is quite impossible to foretell how and to what extent the civil side of the I.M.S. will be affected by the Indian Reform scheme now about to be introduced. The Act does not touch in any way on the military side of the Service. The essence of the reform is in the increasing participation of Indians in the government of the country, and consequently we consider it right to draw the attention of young medical men who are considering joining the Indian Medical Service to this aspect. At the same time we see no reason why the increased co-operation of Indian and European medical officers should not, if a sympathetic attitude is adopted, result in the benefit of both. The number of Indians in the I.M.S. in the days of the competitive examination varied from 8 to 12 per cent. In the two or three years before the war the percentage of successful Indian candidates varied from 12 to 30 per cent. At the present time European and Indian candidates are admitted by nomination in the proportion of 2 Europeans to 1 Indian. A strict system of selection is maintained and permanent commissions are only granted to candidates, whether Europeans or Indians, who have been recommended after a personal interview as suitable and desirable professionally and socially. Practically all the Indian candidates recommended so far have served in the field with distinction and have been recommended by two of their brother officers for the grant of a permanent commission.

A Board of Selection has been appointed in India for the recruitment of permanent officers for the I.M.S. in the manner indicated, consisting of the Director-General, I.M.S., the Director of Medical Services in India, and an Indian Officer, I.M.S. Candidates who may be summoned by the Board for interview will, if considered suitable for appointment, be placed in one of two classes, according as they have or have not received their medical education chiefly in Great Britain. The final recommendations as to the former will be made by the Selection Board in England, while the recommendations as to the latter will be sent direct from India to the Secretary of State, who will make appointments to fill the vacancies. The Selection Committee in England, in addition to considering applications from India of candidates who have mainly received their education in England, will review those of the candidates in the United Kingdom, but not the recommendations of the Indian Committee in regard to candidates educated in that country.

Temporary Commissions.—To meet the present shortage in the cadre of the I.M.S. a special contract is provided for the grant of temporary commissions to European medical officers. The terms of this contract are well worth the consideration of those practitioners who, for private reasons, do not wish to make a definite decision for permanent service in India.

A temporary commission is granted for two years with pay at Rs. 700 per mensem for Lieutenants and Rs. 750 for captains. Three years' service as a medical officer with the Home, Colonial, or Indian forces qualify for the higher rate.

A first-class passage to and from India is granted, and a £50 outfit allowance. Leave is granted under ordinary military rules, and if an officer has not been able to take one month's privilege leave for each year of service he may get the balance at the expiration of his term of engagement. Applicants who, at the end of the period of temporary service apply, and, being eligible, are accepted for permanent commissions in the I.M.S., will be allowed to count their temporary service for rank, gratuity, and pension. Under such a contract any young medical officer has a splendid opportunity of seeing the world under very favourable conditions and determining on the spot whether it is to his advantage or otherwise to continue serving in the East as a permanent officer of the Indian Medical Service.

For full particulars intending candidates should apply to the Secretary, Military Department, India Office, Whitehall, London, S.W. 1.

AIR FORCE MEDICAL SERVICE.

[AUGUST 28, 1920]

AIR FORCE MEDICAL SERVICE.

THE Royal Air Force Medical Service is now definitely established, and, except for a few points which are still under consideration, the conditions of service have received the sanction of His Majesty's Government. This new Service offers a career for medical men which should prove both attractive and interesting. The rates of pay and allowances are good, and a new field of scientific interest is opened up by the manifold problems which the circumstances of aviation produce. The physical and mental fitness for, and reaction to, the varied conditions under which the flying personnel perform their functions provide much scope for research. As promotion to the higher ranks of the Service is to be entirely by selection, and as a certain proportion of the higher ranks will be reserved for purely scientific, as opposed to administrative, appointments, it will be seen that there are excellent prospects for the young medical officer who exhibits ability and energy in scientific research, as well as for those who develop a talent for administration.

The establishment will consist partly of permanent and partly of short-service officers. Short-service officers will be admitted by direct entry for a period of two years, which may be extended to four years at the discretion of the Air Council on recommendation of the Director of Medical Services. Those who are not selected for permanent commissions will pass into the Royal Air Force Medical Reserve at the expiration of their period of service on the active list, and will then receive gratuity to which their service entitles them.

Short-service officers who are approved for permanent commissions, but for whom there are not vacancies in the Royal Air Force Medical Service, may, under certain conditions, transfer to the Royal Army Medical Corps, counting their time served in the Royal Air Force towards increments of pay and retired pay in the Royal Army Medical Corps. Arrangements are being made to allow post-graduate courses after selection for permanent commission.

New entrants into the Royal Air Force Medical Service will be commissioned as Flying Officers (Medical) and will be eligible for promotion to the rank of Flight Lieutenant (Medical) after two years' service. Officers selected for permanent commissions will be promoted to the rank of Squadron Leader after 10 years' total service. Accelerated promotion may be carried out, in a limited number of cases, of officers who show exceptional ability after the completion of eight years' service. Promotion to the rank of Wing Commander will be by selection at any period after 16 years' total service, and to that of Group Captain by selection at any period after 22 years' service.

There will be no competitive examination on entry; candidates must be under 28 years of age, be nominated by the Dean of a recognised medical school or teaching hospital, and will be interviewed personally by the Director of Medical Services, Royal Air Force, before acceptance. Each candidate must produce—

1. Birth certificate.
2. Medical registration certificate.
3. A declaration containing the following information:—
 - (a) Age and place of birth.
 - (b) That he is of pure European descent, and the son of a subject of the British Empire.
 - (c) That he labours under no constitutional or mental disease or disability which may interfere with the efficient discharge of the duties of a medical officer in peace or war. (All candidates will be required to pass a medical examination as to their physical fitness before acceptance to ensure that they fulfil the standard laid down in this declaration.)
 - (d) That he is ready to engage for general service at home or abroad as required.
 - (e) The qualifications he is possessed of, and what medical or other appointments he has held (if any).
 - (f) That he is willing to do whenever called upon to do so, and to qualify in such aviation tests as may be required.

If the applicant is in possession of a certificate of training from Officers' Training Corps this should be submitted. An applicant who at the time of application holds or is about to hold a resident appointment in a recognised civil hospital may be seconded for the period not exceeding one year, during which he holds such appointment. Whilst seconded he will not receive pay from Air Council funds, but

his seniority will count from the day on which he is seconded to the civil hospital.

Uniform and Equipment.

Medical officers will be required to provide themselves with the uniform of their rank and with the distinguishing badges of the Royal Air Force Medical Service. Officers accepting four-year short service commissions will be required to provide themselves with service dress and mess dress. For officers accepting two-year commissions mess dress will be optional. (The question of the grant of an outfit allowance to medical and other officers of the Royal Air Force is under consideration.)

Officers on entry are required to provide themselves with the regulation pocket case of instruments.

RATES OF PAY AND RETIRED PAY.

The rates of pay are as given in Table I:—

Years of service.	Rank.	Rate per diem.
On joining	Flying Officer.	24
After 2 years	Flight Lieutenant.	26
" 4 years	"	28
" 6 years	"	30
On promotion	Squadron Leader.	34
After 2 years in the substantive rank	"	36
" 4 " " " " "	"	40
" 6 " " " " "	"	42
On promotion	Wing Commander.	46
After 2 years in the substantive rank	"	50
" 4 " " " " "	"	52
" 6 " " " " "	"	54
On promotion	Group Captain.	60
After 2 years in the substantive rank	"	64
" 4 " " " " "	"	68

The scale of retired pay for Group Captains and lower ranks is given in Table II:—

Age.	Service counting for retired pay.	Rate of retired pay.	Addition for each extra year of service.*	Reduction for each deficient year of service.*
		£	£	£
55	24	790	22	15
54	23	765	22	15
53	23	742	22	15
52	22	720	22	15
51	22	697	15	15
50	21	675	15	15
49	21	652	15	15
48	20	637	15	15
47	20	600	15	15
46	19	562	15	15
45	19	525	15	15
44	18	487	15	15
43	18	450	15	15
42	17	412	15	15
41	17	375	15	15
40	17	337	15	15
		300		

* Limited to five years.

Group Captains retire at 55; maximum retired pay £900.
Wing Commanders retire at 51; maximum retired pay £500.
Squadron Leaders retire at 48; maximum retired pay £500.

There will be a minimum qualifying period for retired pay of 20 years.

Gratuities.

Short-service officers will receive gratuities at the rate of £100 for each of the first two completed years of service and at the rate of £150 for the third and fourth complete year. (If granted permanent commissions these gratuities will not be payable, but the period of service under the short-service commission will count for retired pay.)

Medical officers holding permanent commissions may, at the discretion of the Air Council, be allowed to withdraw from the Service after ten years' service with a gratuity of £1250 or after 16 years with a gratuity of £2000 in lieu of retired pay.

Allowances.

The usual allowances will be payable to medical officers under the same conditions as to officers of other branches of the Royal Air Force.

THE COLONIAL MEDICAL SERVICE.

In the self-governing dominions, Canada, Australia, New Zealand, the Union of South Africa, and Newfoundland, medical appointments are made concerning which information can be obtained from the High Commissioners or Agents-General in London; appointments in Egypt and the Sudan are regulated from the Foreign Office; in Aden and adjacent territories the appointments are under the control of the Government of Bombay; in Rhodesia the appointments are made by the British South Africa Company, London Wall Buildings, E.C.; in North Borneo application should be made to the British North Borneo Company, 37, Threadneedle-street, E.C., for appointments; and those in Sarawak are in the hands of H.H. the Rajah.

But in addition to all these there are a large number of important posts under the patronage of the Secretary of State for the Colonies. These concern East Africa (the East Africa, Uganda, Nyassaland, Somaliland, and Zanzibar Protectorates); Eastern (Ceylon, the Straits Settlements, and Federated Malay States, Hong-Kong, Weihaiwei, Mauritius, and Seychelles); West India (British Guiana, Jamaica, Trinidad, the Windward Islands, the Leeward Islands, Barbados, British Honduras, and the Bahamas); Fiji and the Western Pacific, Cyprus, Malta, Gibraltar, St. Helena, Bermuda, and the Falkland Islands; and West Africa (Nigeria, the Gold Coast, Sierra Leone, and the Gambia). As a general rule, each Colony or Protectorate has its own public service distinct from that of every other, and it is usually only the higher officers who are transferred by the Secretary of State from one Colony to another; but there are two exceptions to this rule. The West African Medical Staff, which serves Nigeria, the Gold Coast, Sierra Leone, and the Gambia, form one service, and in practice the medical services of the Straits Settlements and the Federated Malay States may be regarded as one, as the officers may be and frequently are transferred from the Colony to the States, or *vice versa*. In Ceylon, Mauritius, Jamaica, Barbados, the Bahamas, and Bermuda vacancies are almost always filled locally by the appointment of qualified native candidates, or—in the case of some of the higher posts—by transfer from other Colonies. Appointments in Malta are all filled locally. Vacancies in the Hong-Kong Medical Department are generally filled by transfer from other Colonies. Medical appointments in the Bechuanaland Protectorate, Basutoland, and Swaziland are made only on the recommendation of the High Commissioner for South Africa, who usually appoints local candidates. In most cases the duties of a colonial medical officer are of a very general character, including medical, surgical, and often public health work. It is only occasionally that a specialist is required.

Applicants must be between the ages of 23 and 35 and doubly qualified, and the choice will usually fall on those who have held hospital appointments. Before being definitely appointed candidates will be medically examined by one of the consulting physicians of the Colonial Office: Sir J. Rose Bradford, K.C.M.G., 8, Manchester-square, London, W.; Sir J. Hawtrey Dawson, 57, Fitzwilliam-square, Dublin; Lieutenant Colonel J. Arnott, I.M.S., 8, Rochester-place, Edinburgh; and W. T. Probst, Esq., C.M.G., 14, Rodney-street, Liverpool.

East Africa.—There are now vacancies for Medical Officers and Medical Officers of Health in East Africa. It is usual to select Medical Officers of Health from among officers already serving as Medical Officers, and in the wording of the regulations the term "Medical Officers" covers "Medical Officers of Health," save where the context indicates otherwise. Medical Officers selected for appointment to East Africa are allocated to one of the following areas, the length of leave granted normally 30 months in East Africa. If an officer is not returning for further duty the leave for which he is eligible is the period of the voyage home and 23 days in Hong and for every month of service; if returning for further duty, the leave for which he is eligible is the period of the voyage home and back to East Africa and 5 days in England for every month of service in East Africa, but at certain stations service qualifies for leave at 3 and 6 days instead of 23 and 5 days respectively. A free first-class passage is provided by the Government on first appointment and on leave. Quarters (with

furniture) are provided free of rent, or if quarters are not available, an allowance is given in lieu. Travelling allowance is paid to officers travelling on duty in East Africa in accordance with local regulations. Private practice is permitted subject to the proviso that it must not interfere with the officer's Government work, but this privilege is not granted to Medical Officers of Health. An Officer is eligible to retire on pension at the age of 55. Pension is calculated on the basis of 1/6th of pensionable emoluments in the form of retirement (i.e., salary and the value of free quarters) for each year of service, less 2 1/2 per cent. of service being reckoned for this purpose as three years. Medical Officers may, however, retire with gratuity, if they wish, instead of waiting to retire at the retiring age on pension. The gratuity is: After 9 years' service, not less than 6 years' service, 1/2 of salary; after 12 years' service, 2/3 of salary; after 15 years' service, 3/4 of salary; after 18 years' service, 4/5 of salary; after 21 years' service, 5/6 of salary; after 24 years' service, 6/7 of salary; after 27 years' service, 7/8 of salary; after 30 years' service, 8/9 of salary; after 33 years' service, 9/10 of salary; after 36 years' service, 10/11 of salary; after 39 years' service, 11/12 of salary; after 42 years' service, 12/13 of salary; after 45 years' service, 13/14 of salary; after 48 years' service, 14/15 of salary; after 51 years' service, 15/16 of salary; after 54 years' service, 16/17 of salary; after 57 years' service, 17/18 of salary; after 60 years' service, 18/19 of salary; after 63 years' service, 19/20 of salary; after 66 years' service, 20/21 of salary; after 69 years' service, 21/22 of salary; after 72 years' service, 22/23 of salary; after 75 years' service, 23/24 of salary; after 78 years' service, 24/25 of salary; after 81 years' service, 25/26 of salary; after 84 years' service, 26/27 of salary; after 87 years' service, 27/28 of salary; after 90 years' service, 28/29 of salary; after 93 years' service, 29/30 of salary; after 96 years' service, 30/31 of salary; after 99 years' service, 31/32 of salary; after 102 years' service, 32/33 of salary; after 105 years' service, 33/34 of salary; after 108 years' service, 34/35 of salary; after 111 years' service, 35/36 of salary; after 114 years' service, 36/37 of salary; after 117 years' service, 37/38 of salary; after 120 years' service, 38/39 of salary; after 123 years' service, 39/40 of salary; after 126 years' service, 40/41 of salary; after 129 years' service, 41/42 of salary; after 132 years' service, 42/43 of salary; after 135 years' service, 43/44 of salary; after 138 years' service, 44/45 of salary; after 141 years' service, 45/46 of salary; after 144 years' service, 46/47 of salary; after 147 years' service, 47/48 of salary; after 150 years' service, 48/49 of salary; after 153 years' service, 49/50 of salary; after 156 years' service, 50/51 of salary; after 159 years' service, 51/52 of salary; after 162 years' service, 52/53 of salary; after 165 years' service, 53/54 of salary; after 168 years' service, 54/55 of salary; after 171 years' service, 55/56 of salary; after 174 years' service, 56/57 of salary; after 177 years' service, 57/58 of salary; after 180 years' service, 58/59 of salary; after 183 years' service, 59/60 of salary; after 186 years' service, 60/61 of salary; after 189 years' service, 61/62 of salary; after 192 years' service, 62/63 of salary; after 195 years' service, 63/64 of salary; after 198 years' service, 64/65 of salary; after 201 years' service, 65/66 of salary; after 204 years' service, 66/67 of salary; after 207 years' service, 67/68 of salary; after 210 years' service, 68/69 of salary; after 213 years' service, 69/70 of salary; after 216 years' service, 70/71 of salary; after 219 years' service, 71/72 of salary; after 222 years' service, 72/73 of salary; after 225 years' service, 73/74 of salary; after 228 years' service, 74/75 of salary; after 231 years' service, 75/76 of salary; after 234 years' service, 76/77 of salary; after 237 years' service, 77/78 of salary; after 240 years' service, 78/79 of salary; after 243 years' service, 79/80 of salary; after 246 years' service, 80/81 of salary; after 249 years' service, 81/82 of salary; after 252 years' service, 82/83 of salary; after 255 years' service, 83/84 of salary; after 258 years' service, 84/85 of salary; after 261 years' service, 85/86 of salary; after 264 years' service, 86/87 of salary; after 267 years' service, 87/88 of salary; after 270 years' service, 88/89 of salary; after 273 years' service, 89/90 of salary; after 276 years' service, 90/91 of salary; after 279 years' service, 91/92 of salary; after 282 years' service, 92/93 of salary; after 285 years' service, 93/94 of salary; after 288 years' service, 94/95 of salary; after 291 years' service, 95/96 of salary; after 294 years' service, 96/97 of salary; after 297 years' service, 97/98 of salary; after 300 years' service, 98/99 of salary; after 303 years' service, 99/100 of salary; after 306 years' service, 100/101 of salary; after 309 years' service, 101/102 of salary; after 312 years' service, 102/103 of salary; after 315 years' service, 103/104 of salary; after 318 years' service, 104/105 of salary; after 321 years' service, 105/106 of salary; after 324 years' service, 106/107 of salary; after 327 years' service, 107/108 of salary; after 330 years' service, 108/109 of salary; after 333 years' service, 109/110 of salary; after 336 years' service, 110/111 of salary; after 339 years' service, 111/112 of salary; after 342 years' service, 112/113 of salary; after 345 years' service, 113/114 of salary; after 348 years' service, 114/115 of salary; after 351 years' service, 115/116 of salary; after 354 years' service, 116/117 of salary; after 357 years' service, 117/118 of salary; after 360 years' service, 118/119 of salary; after 363 years' service, 119/120 of salary; after 366 years' service, 120/121 of salary; after 369 years' service, 121/122 of salary; after 372 years' service, 122/123 of salary; after 375 years' service, 123/124 of salary; after 378 years' service, 124/125 of salary; after 381 years' service, 125/126 of salary; after 384 years' service, 126/127 of salary; after 387 years' service, 127/128 of salary; after 390 years' service, 128/129 of salary; after 393 years' service, 129/130 of salary; after 396 years' service, 130/131 of salary; after 399 years' service, 131/132 of salary; after 402 years' service, 132/133 of salary; after 405 years' service, 133/134 of salary; after 408 years' service, 134/135 of salary; after 411 years' service, 135/136 of salary; after 414 years' service, 136/137 of salary; after 417 years' service, 137/138 of salary; after 420 years' service, 138/139 of salary; after 423 years' service, 139/140 of salary; after 426 years' service, 140/141 of salary; after 429 years' service, 141/142 of salary; after 432 years' service, 142/143 of salary; after 435 years' service, 143/144 of salary; after 438 years' service, 144/145 of salary; after 441 years' service, 145/146 of salary; after 444 years' service, 146/147 of salary; after 447 years' service, 147/148 of salary; after 450 years' service, 148/149 of salary; after 453 years' service, 149/150 of salary; after 456 years' service, 150/151 of salary; after 459 years' service, 151/152 of salary; after 462 years' service, 152/153 of salary; after 465 years' service, 153/154 of salary; after 468 years' service, 154/155 of salary; after 471 years' service, 155/156 of salary; after 474 years' service, 156/157 of salary; after 477 years' service, 157/158 of salary; after 480 years' service, 158/159 of salary; after 483 years' service, 159/160 of salary; after 486 years' service, 160/161 of salary; after 489 years' service, 161/162 of salary; after 492 years' service, 162/163 of salary; after 495 years' service, 163/164 of salary; after 498 years' service, 164/165 of salary; after 501 years' service, 165/166 of salary; after 504 years' service, 166/167 of salary; after 507 years' service, 167/168 of salary; after 510 years' service, 168/169 of salary; after 513 years' service, 169/170 of salary; after 516 years' service, 170/171 of salary; after 519 years' service, 171/172 of salary; after 522 years' service, 172/173 of salary; after 525 years' service, 173/174 of salary; after 528 years' service, 174/175 of salary; after 531 years' service, 175/176 of salary; after 534 years' service, 176/177 of salary; after 537 years' service, 177/178 of salary; after 540 years' service, 178/179 of salary; after 543 years' service, 179/180 of salary; after 546 years' service, 180/181 of salary; after 549 years' service, 181/182 of salary; after 552 years' service, 182/183 of salary; after 555 years' service, 183/184 of salary; after 558 years' service, 184/185 of salary; after 561 years' service, 185/186 of salary; after 564 years' service, 186/187 of salary; after 567 years' service, 187/188 of salary; after 570 years' service, 188/189 of salary; after 573 years' service, 189/190 of salary; after 576 years' service, 190/191 of salary; after 579 years' service, 191/192 of salary; after 582 years' service, 192/193 of salary; after 585 years' service, 193/194 of salary; after 588 years' service, 194/195 of salary; after 591 years' service, 195/196 of salary; after 594 years' service, 196/197 of salary; after 597 years' service, 197/198 of salary; after 600 years' service, 198/199 of salary; after 603 years' service, 199/200 of salary; after 606 years' service, 200/201 of salary; after 609 years' service, 201/202 of salary; after 612 years' service, 202/203 of salary; after 615 years' service, 203/204 of salary; after 618 years' service, 204/205 of salary; after 621 years' service, 205/206 of salary; after 624 years' service, 206/207 of salary; after 627 years' service, 207/208 of salary; after 630 years' service, 208/209 of salary; after 633 years' service, 209/210 of salary; after 636 years' service, 210/211 of salary; after 639 years' service, 211/212 of salary; after 642 years' service, 212/213 of salary; after 645 years' service, 213/214 of salary; after 648 years' service, 214/215 of salary; after 651 years' service, 215/216 of salary; after 654 years' service, 216/217 of salary; after 657 years' service, 217/218 of salary; after 660 years' service, 218/219 of salary; after 663 years' service, 219/220 of salary; after 666 years' service, 220/221 of salary; after 669 years' service, 221/222 of salary; after 672 years' service, 222/223 of salary; after 675 years' service, 223/224 of salary; after 678 years' service, 224/225 of salary; after 681 years' service, 225/226 of salary; after 684 years' service, 226/227 of salary; after 687 years' service, 227/228 of salary; after 690 years' service, 228/229 of salary; after 693 years' service, 229/230 of salary; after 696 years' service, 230/231 of salary; after 699 years' service, 231/232 of salary; after 702 years' service, 232/233 of salary; after 705 years' service, 233/234 of salary; after 708 years' service, 234/235 of salary; after 711 years' service, 235/236 of salary; after 714 years' service, 236/237 of salary; after 717 years' service, 237/238 of salary; after 720 years' service, 238/239 of salary; after 723 years' service, 239/240 of salary; after 726 years' service, 240/241 of salary; after 729 years' service, 241/242 of salary; after 732 years' service, 242/243 of salary; after 735 years' service, 243/244 of salary; after 738 years' service, 244/245 of salary; after 741 years' service, 245/246 of salary; after 744 years' service, 246/247 of salary; after 747 years' service, 247/248 of salary; after 750 years' service, 248/249 of salary; after 753 years' service, 249/250 of salary; after 756 years' service, 250/251 of salary; after 759 years' service, 251/252 of salary; after 762 years' service, 252/253 of salary; after 765 years' service, 253/254 of salary; after 768 years' service, 254/255 of salary; after 771 years' service, 255/256 of salary; after 774 years' service, 256/257 of salary; after 777 years' service, 257/258 of salary; after 780 years' service, 258/259 of salary; after 783 years' service, 259/260 of salary; after 786 years' service, 260/261 of salary; after 789 years' service, 261/262 of salary; after 792 years' service, 262/263 of salary; after 795 years' service, 263/264 of salary; after 798 years' service, 264/265 of salary; after 801 years' service, 265/266 of salary; after 804 years' service, 266/267 of salary; after 807 years' service, 267/268 of salary; after 810 years' service, 268/269 of salary; after 813 years' service, 269/270 of salary; after 816 years' service, 270/271 of salary; after 819 years' service, 271/272 of salary; after 822 years' service, 272/273 of salary; after 825 years' service, 273/274 of salary; after 828 years' service, 274/275 of salary; after 831 years' service, 275/276 of salary; after 834 years' service, 276/277 of salary; after 837 years' service, 277/278 of salary; after 840 years' service, 278/279 of salary; after 843 years' service, 279/280 of salary; after 846 years' service, 280/281 of salary; after 849 years' service, 281/282 of salary; after 852 years' service, 282/283 of salary; after 855 years' service, 283/284 of salary; after 858 years' service, 284/285 of salary; after 861 years' service, 285/286 of salary; after 864 years' service, 286/287 of salary; after 867 years' service, 287/288 of salary; after 870 years' service, 288/289 of salary; after 873 years' service, 289/290 of salary; after 876 years' service, 290/291 of salary; after 879 years' service, 291/292 of salary; after 882 years' service, 292/293 of salary; after 885 years' service, 293/294 of salary; after 888 years' service, 294/295 of salary; after 891 years' service, 295/296 of salary; after 894 years' service, 296/297 of salary; after 897 years' service, 297/298 of salary; after 900 years' service, 298/299 of salary; after 903 years' service, 299/300 of salary; after 906 years' service, 300/301 of salary; after 909 years' service, 301/302 of salary; after 912 years' service, 302/303 of salary; after 915 years' service, 303/304 of salary; after 918 years' service, 304/305 of salary; after 921 years' service, 305/306 of salary; after 924 years' service, 306/307 of salary; after 927 years' service, 307/308 of salary; after 930 years' service, 308/309 of salary; after 933 years' service, 309/310 of salary; after 936 years' service, 310/311 of salary; after 939 years' service, 311/312 of salary; after 942 years' service, 312/313 of salary; after 945 years' service, 313/314 of salary; after 948 years' service, 314/315 of salary; after 951 years' service, 315/316 of salary; after 954 years' service, 316/317 of salary; after 957 years' service, 317/318 of salary; after 960 years' service, 318/319 of salary; after 963 years' service, 319/320 of salary; after 966 years' service, 320/321 of salary; after 969 years' service, 321/322 of salary; after 972 years' service, 322/323 of salary; after 975 years' service, 323/324 of salary; after 978 years' service, 324/325 of salary; after 981 years' service, 325/326 of salary; after 984 years' service, 326/327 of salary; 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after 1053 years' service, 349/350 of salary; after 1056 years' service, 350/351 of salary; after 1059 years' service, 351/352 of salary; after 1062 years' service, 352/353 of salary; after 1065 years' service, 353/354 of salary; after 1068 years' service, 354/355 of salary; after 1071 years' service, 355/356 of salary; after 1074 years' service, 356/357 of salary; after 1077 years' service, 357/358 of salary; after 1080 years' service, 358/359 of salary; after 1083 years' service, 359/360 of salary; after 1086 years' service, 360/361 of salary; after 1089 years' service, 361/362 of salary; after 1092 years' service, 362/363 of salary; after 1095 years' service, 363/364 of salary; after 1098 years' service, 364/365 of salary; after 1101 years' service, 365/366 of salary; after 1104 years' service, 366/367 of salary; after 1107 years' service, 367/368 of salary; after 1110 years' service, 368/369 of salary; after 1113 years' service, 369/370 of salary; after 1116 years' service, 370/371 of salary; after 1119 years' service, 371/372 of salary; after 1122 years' service, 372/373 of salary; after 1125 years' service, 373/374 of salary; after 1128 years' service, 374/375 of salary; after 1131 years' service, 375/376 of salary; after 1134 years' service, 376/377 of salary; after 1137 years' service, 377/378 of salary; after 1140 years' service, 378/379 of salary; after 1143 years' service, 379/380 of salary; after 1146 years' service, 380/381 of salary; after 1149 years' service, 381/382 of salary; after 1152 years' service, 382/383 of salary; after 1155 years' service, 383/384 of salary; after 1158 years' service, 384/385 of salary; after 1161 years' service, 385/386 of salary; after 1164 years' service, 386/387 of salary; after 1167 years' service, 387/388 of salary; after 1170 years' service, 388/389 of salary; after 1173 years' service, 389/390 of salary; after 1176 years' service, 390/391 of salary; after 1179 years' service, 391/392 of salary; after 1182 years' service, 392/393 of salary; after 1185 years' service, 393/394 of salary; after 1188 years' service, 394/395 of salary; after 1191 years' service, 395/396 of salary; after 1194 years' service, 396/397 of salary; after 1197 years' service, 397/398 of salary; after 1200 years' service, 398/399 of salary; after 1203 years' service, 399/400 of salary; after 1206 years' service, 400/401 of salary; after 1209 years' service, 401/402 of salary; after 1212 years' service, 402/403 of salary; after 1215 years' service, 403/404 of salary; after 1218 years' service, 404/405 of salary; after 1221 years' service, 405/406 of salary; after 1224 years' service, 406/407 of salary; after 1227 years' service, 407/408 of salary; after 1230 years' service, 408/409 of salary; after 1233 years' service, 409/410 of salary; after 1236 years' service, 410/411 of salary; after 1239 years' service, 411/412 of salary; after 1242 years' service, 412/413 of salary; after 1245 years' service, 413/414 of salary; after 1248 years' service, 414/415 of salary; after 1251 years' service, 415/416 of salary; after 1254 years' service, 416/417 of salary; after 1257 years' service, 417/418 of salary; after 1260 years' service, 418/419 of salary; after 1263 years' service, 419/420 of salary; after 1266 years' service, 420/421 of salary; after 1269 years' service, 421/422 of salary; after 1272 years' service, 422/423 of salary; after 1275 years' service, 423/424 of salary; after 1278 years' service, 424/425 of salary; after 1281 years' service, 425/426 of salary; after 1284 years' service, 426/427 of salary; after 1287 years' service, 427/428 of salary; after 1290 years' service, 428/429 of salary; after 1293 years' service, 429/430 of salary; after 1296 years' service, 430/431 of salary; after 1299 years' service, 431/432 of salary; after 1302 years' service, 432/433 of salary; after 1305 years' service, 433/434 of salary; after 1308 years' service, 434/435 of salary; after 1311 years' service, 435/436 of salary; after 1314 years' service, 436/437 of salary; after 1317 years' service, 437/438 of salary; after 1320 years' service, 438/439 of salary; after 1323 years' service, 439/440 of salary; after 1326 years' service, 440/441 of salary; after 1329 years' service, 441/442 of salary; after 1332 years' service, 442/443 of salary; after 1335 years' service, 443/444 of salary; after 1338 years' service, 444/445 of salary; after 1341 years' service, 445/446 of salary; after 1344 years' service, 446/447 of salary; after 1347 years' service, 447/448 of salary; after 1350 years' service, 448/449 of salary; after 1353 years' service, 449/450 of salary; after 1356 years' service, 450/451 of salary; after 1359 years' service, 451/452 of salary; after 1362 years' service, 452/453 of salary; after 1365 years' service, 453/454 of salary; after 1368 years' service, 454/455 of salary; after 1371 years' service, 455/456 of salary; after 1374 years' service, 456/457 of salary; after 1377 years' service, 457/458 of salary; after 1380 years' service, 458/459 of salary; after 1383 years' service, 459/460 of salary; after 1386 years' service, 460/461 of salary; after 1389 years' service, 461/462 of salary; after 1392 years' service, 462/463 of salary; after 1395 years' service, 463/464 of salary; after 1398 years' service, 464/465 of salary; after 1401 years' service, 465/466 of salary; after 1404 years' service, 466/467 of salary; after 1407 years' service, 467/468 of salary; after 1410 years' service, 468/469 of salary; after 1413 years' service, 469/470 of salary; after 1416 years' service, 470/471 of salary; after 1419 years' service, 471/472 of salary; after 1422 years' service, 472/473 of salary; after 1425 years' service, 473/474 of salary; after 1428 years' service, 474/475 of salary; after 1431 years' service, 475/476 of salary; after 1434 years' service, 476/477 of salary; after 1437 years' service, 477/478 of salary; after 1440 years' service, 478/479 of salary; after 1443 years' service, 479/480 of salary; after 1446 years' service, 480/481 of salary; after 1449 years' service, 481/482 of salary; after 1452 years' service, 482/483 of salary; after 1455 years' service, 483/484 of salary; after 1458 years' service, 484/485 of salary; after 1461 years' service, 485/486 of salary; after 1464 years' service, 486/487 of salary; after 1467 years' service, 487/488 of salary; after 1470 years' service, 488/489 of salary; after 1473 years' service, 489/490 of salary; after 1476 years' service, 490/491 of salary; after 1479 years' service, 491/492 of salary; after 1482 years' service, 492/493 of salary; after 1485 years' service, 493/494 of salary; after 1488 years' service, 494/495 of salary; after 1491 years' service, 495/496 of salary; after 1494 years' service, 496/497 of salary; after 1497 years' service, 497/498 of salary; after 1500 years' service, 498/499 of salary; after 1503 years' service, 499/500 of salary; after 1506 years' service, 500/501 of salary; after 1509 years' service, 501/502 of salary; after 1512 years' service, 502/503 of salary; after 1515 years' service, 503/504 of salary; after 1518 years' service, 504/505 of salary; after 1521 years' service, 505/506 of salary; after 1524 years' service, 506/507 of salary; after 1527 years' service, 507/508 of salary; after 1530 years' service, 508/509 of salary; after 1533 years' service, 509/510 of salary; after 1536 years' service, 510/511 of salary; after 1539 years' service, 511/512 of salary; after 1542 years' service, 512/513 of salary; after 1545 years' service, 513/514 of salary; after 1548 years' service, 514/515 of salary; after 1551 years' service, 515/516 of salary; after 1554 years' service, 516/517 of salary; after 1557 years' service, 517/518 of salary; after 1560 years' service, 518/519 of salary; after 1563 years' service, 519/520 of salary; after 1566 years' service, 520/521 of salary; after 1569 years' service, 521/522 of salary; after 1572 years' service, 522/523 of salary; after 1575 years' service, 523/524 of salary; after 1578 years' service, 524/525 of salary; after 1581 years' service, 525/526 of salary; after 1584 years' service, 526/527 of salary; after 1587 years' service, 527/528 of salary; after 1590 years' service, 528/529 of salary; after 1593 years' service, 529/530 of salary; after 1596 years' service, 530/531 of salary; after 1599 years' service, 531/532 of salary; after 1602 years' service, 532/533 of salary; after 1605 years' service, 533/534 of salary; after 1608 years' service, 534/535 of salary; after 1611 years' service, 535/536 of salary; after 1614 years' service, 536/537 of salary; after 1617 years' service, 537/538 of salary; after 1620 years' service, 538/539 of salary; after 1623 years' service, 539/540 of salary; after 1626 years' service, 540/541 of salary; after 1629 years' service, 541/542 of salary; after 1632 years' service, 542/543 of salary; after 1635 years' service, 543/544 of salary; after 1638 years' service, 544/545 of salary; after 1641 years' service, 545/546 of salary; after 1644 years' service, 546/547 of salary; after 1647 years' service, 547/548 of salary; after 165

Leave and Privileges.—The ordinary tour of residential service is one year, followed by leave with full pay during the voyages to and from England, and for four or two months' leave in England, according as the officer is returning for further service in West Africa or not. If an officer is detained beyond the year, additional leave is given with full pay for ten days in respect of each completed month beyond twelve months. If he is returning or not, if he is invalided before the end of the

year, the leave with full pay is for the voyages and for ten or five days in respect of each complete month, according as he is returning or not. Leave granted on the understanding that an officer will return is known as "return leave," and any pay drawn in respect of such leave is liable to be refunded if he does not return. Leave may be extended with half pay for a period not exceeding four months on the ground of ill-health, or without pay on that or other grounds. Free passages are given to an officer on his first voyage, and if he is also given an appointment, subject to the officer signing an agreement under which he is liable to refund its cost if he relinquishes his appointment for any other reason than physical or mental infirmity, or is removed for misconduct, within three years from the date of his arrival in West Africa. Half pay is given during the voyage out on first appointment.

Private Practice.—All officers of the Staff, except Principal Medical Officers, Deputy Principal Medical Officers, Provincial Medical Officers, Sanitary Officers, and a few other officers holding special appointments, are at present allowed to take private practice, provided that it does not interfere with the efficient performance of their official duties, but it is within the power of the Governor to withdraw his licence to practise in any place and for such periods as he may consider desirable. Private practice does not exist at the majority of stations, and as a general rule, subject to the exigencies of the service, stations where there is private practice are allocated to senior members of the staff.

Pensions and Gratuities.—These vary in accordance with the regulations of each Colony, but generally speaking an officer on attaining the age of 50 years, or after 15 years' service (of which at least 12 must have been residential) is qualified for a pension calculated at one-fortieth of the last annual salary for each year of service. If invalided after a minimum of seven years' service, he is qualified for a pension calculated at the same rate. If invalided before completing seven years' service, he is qualified for a gratuity not exceeding three-quarters of a month's salary for each six months of service; provided that he has been confirmed in his appointment. For the purpose of calculating the amount of these pensions and gratuities, leave of absence without salary is not counted, while leave with half salary is counted as full salary. In addition, representing the value of free quarters, is made to the officer's salary. This addition is as follows: To salaries of £400 a year, an addition of £50; to salaries above £400, but not exceeding £500, an addition of £50; to salaries above £500, but not exceeding £700, an addition of £50; to salaries above £700, but not exceeding £800, an addition of £70; to salaries exceeding £800, an addition of £25. In addition to the ordinary regulations, an officer of the West African Medical Staff enjoys the following special privileges. At the end of nine years (of which not less than six must have been residential) he will be permitted to retire with a gratuity of £1000, or at the end of 12 years of which not less than eight must have been residential, with a gratuity of £1250. All claims to pensions are, however, forfeited on the receipt of such a gratuity. In the event of an officer dying in the service after completing the period of residence qualifying him for the smaller or the larger of these gratuities, a sum equal to the gratuity in question is paid to the estate of his estate. Officers are also allowed to take their wives with them until they have acquired experience of the local conditions, and have obtained the sanction of the Governor. Passages for wives and children are not provided.

Candidates for medical appointments in West Africa are allowed to express a preference for any particular Colony or Protectorate, and their wishes in this respect will be borne in mind and met as far as possible. If unable to be posted in the first instance, or transferred afterwards if necessary, to any other West African Colony or Protectorate at the discretion of the Secretary of State. Candidates who wish to be posted to the Northern Provinces of Nigeria should be able to ride. Candidates should not on account of age or of any other reason be considered for appointment in the expectation of ultimately being transferred elsewhere, as the number of such transfers is exceedingly small. No applications for transfer can be entertained until an officer has served for five years in the West African Medical Staff, and medical desirability to be transferred must be prepared to do that and medical desirability in other Colonies are lower than in West Africa. Only a small proportion of applicants succeed in obtaining a transfer. Officers who may be transferred to pensionable appointments under the Crown elsewhere than in West Africa do not forfeit their claim to pension in respect of their service on final retirement, provided they have been members of the Staff for at least 12 months.

Instruction in Tropical Medicine.—Every candidate selected for appointment will, unless the Secretary of State decides otherwise, be required to undergo a course of instruction for two or three months, either at the London School of Tropical Medicine, Endell Street, Strand, W.C.2, or at the Liverpool School of Tropical Medicine at the University of Liverpool. The cost of tuition will be borne by the Government, but candidates must make their own arrangements for board and lodging; an allowance of £3 a week will be paid to them monthly in arrears for this purpose. A salary of £2,000 per annum will be paid to each candidate, monthly in arrears, during the course, and may be continued subsequently up to the date of embarkation. These payments must be refunded by the candidate if he declines to accept an appointment in any of the Colonies or Protectorates for which he has satisfied the school authorities, or if he relinquishes the West African service for any other reason than mental or physical infirmity, or is removed for misconduct, within three years of the date of his arrival in West Africa. If at the end of the season there exist no vacancies in the staff to which a candidate can be appointed, he will be placed in a Reserve and granted an allowance at the rate of £200 a year until the occurrence of a vacancy.

Course of study for higher scale of salary.—The approved course of study is the three months' course of the West London Post-graduate College, or the London School of Tropical Medicine, Endell Street, in clinical medicine, clinical surgery, and pathology. Officers are allowed

to substitute for this course either the course of study and examination for a recognised diploma or degree in public health, sanitary science, or State medicine; the course of study and examination for a further medical or surgical diploma or degree; or if the Governor, on the recommendation of the Principal Medical Officer, approves—a course of study in some special branch of medical or surgical practice (e.g., ophthalmology, dermatology, genito-urinary diseases), or an advanced course at the London or Liverpool School of Tropical Medicine. Whichever of these courses of study is selected, the necessary tuition and examination fees will be paid by the Colonial Government except in the event of an officer's deciding to enter for a further medical or surgical diploma or degree.

In conclusion it should be added that owing to the waste of war and the lapse of periods of service there are at the present time many vacancies in the Colonial service, and that the age limits laid down for Colonial appointments are not always insisted upon, while in a number of cases a temporary war bonus augments the salary. It should be noted, too, that there is some possibility that in the near future opportunities may be given to Colonial officers for research work, thus bringing this branch of public medical service more in line with the opportunities offered to the military and naval services.

DIPLOMAS IN STATE AND TROPICAL MEDICINE.

AS usual we include in the Students' Number of THE LANCET an epitome of the instruction given at various universities and centres of medical education to medical men desiring to obtain diplomas in sanitary science, public health, State medicine, and tropical medicine.

Resolutions, designed with a view of ensuring "the possession of a distinctively high proficiency, scientific and practical, in all the branches of study which concern the public health," have been adopted at various times by the General Medical Council from 1902 to 1911. Certain universities and corporations grant qualifications in Tropical Medicine which have not as yet been made registrable by statute.

University of Oxford.—An examination, conducted partly in writing, partly *visu voce*, and in each subject partly practical, is held in Michaelmas and Trinity Term in the following subjects:—General Hygiene, General Pathology (with special relation to Infectious Diseases), the Laws relating to Public Health, Sanitary Engineering, Vital Statistics. The examination is in two parts, which may be taken together or separately; but Part I. must be passed either before or at the same examination as Part II. The fee for admission to the examination is £5 for each part. Successful candidates are entitled to receive the Diploma in Public Health.

The First Part of the examination will comprise (a) a written paper of three hours in Chemistry and Physics; (b) a three hours' practical and *visu voce* examination in Chemistry and Physics.

The Second Part of the examination will consist of the following parts:—(a) Two written papers, each of three hours, dealing with General Hygiene (including Sanitary Engineering, Vital Statistics, and the Laws relating to Public Health); (b) a practical and *visu voce* examination in General Hygiene; (c) a written paper of three hours in Pathology and Bacteriology; and (d) a three hours' practical and *visu voce* examination in Pathology and Bacteriology.

Candidates in Part I. of the examination will be required to produce a certificate (1) of Laboratory Work in Chemistry as applied to Hygiene.

Candidates in Part II. will produce the following further certificates: (2) of a Practical Knowledge of the Duties, Routine and Special, of Public Health Administration; (3) of having had Practical Instruction in Bacteriology, and the Pathology of the Diseases of Animals transmissible to Man; and (4) of having attended the practice of a Hospital for Infectious Diseases at which opportunities are afforded for the study of the Methods of Administration. All the above degrees are now open to Women Students, and particulars of the various Ladies' Colleges. The fees from the Principals must be sent to the Assistant Registrar of the University, Clarendon Building, Oxford, to whom applications for any further information should be addressed.

1 Except that the pension of an officer who has been promoted within three years of his retirement is calculated on the average of his salary for the last three years.

University of Cambridge.—Two examinations in so much of State medicine as comprised in the functions of medical officers of health are held during the year. The examination is divided into two parts and demands proficiency in all the branches of study which bear upon the duties of medical officers of health. The examinations in both parts will be oral and practical, as well as in writing. Candidates may present themselves for either part separately or for both together at their option; but the result of the examination in the case of any candidate will not be published until he has satisfied the examiners in both parts. Marks of distinction will be placed against the names of candidates who have specially distinguished themselves in either (1) general principles of hygiene; (2) bacteriology; (3) chemistry in Part I. of the examination; or (4) the second part of the examination, which has reference to State Medicine and to the applications of Pathology and Sanitary Science. Every candidate will be required to pay a fee of £5 6s. before admission or readmission to either part of the examination, but candidates who have presented themselves before the year 1896 will be readmitted to either part on payment of a fee of £5 5s. Candidates must before admission to either part of the examination produce evidence of having satisfied provisions (1), (2), and (3), and before admission to Part II. having satisfied provision (4), above mentioned.

For Part I. of the examination courses of lectures and laboratory instruction are given in the University by Mr. J. E. Purvis on Hygiene, Chemistry, &c., and by Dr. Graham-Smith on Bacteriology. Professor G. H. F. Nuttall gives a course of lectures on Protozoal Diseases, and Dr. A. E. Shipley on Animal Parasites. For Part II. Dr. A. J. Laird, the Medical Officer of Health for Cambridge, gives courses on Practical Sanitary Administration and in the Administrative Methods of the Infectious Diseases Hospital, and Dr. F. Robinson, the Medical Officer of Health to the Cambridgeshire County Council, on Sanitary Laws, School Hygiene, Epidemiology, Vital Statistics, &c. These courses are open to non-members of the University.

All applications for further information respecting examinations and the courses of study should be addressed to Mr. Purvis, Chemical Laboratory, Pembroke-street, Cambridge.

Two Examinations in Tropical Medicine and Hygiene are conducted yearly by the State Medicine Syndicate of the University of Cambridge. The examinations are held in Cambridge early in January and in the middle of August. Each examination will extend over four days.

Any person whose name is on the Medical Register is admissible as a candidate to the examination provided (I.) that a period of not less than 12 months have elapsed between his attainment of a registrable qualification and his admission to the examination; (II.) that he produce evidence, satisfactory to the Syndicate, that he has diligently studied Pathology (including parasitology and bacteriology) in relation to Tropical Diseases, Clinical Medicine, and Surgery at a Hospital for Tropical Diseases, and Hygiene and Methods of Sanitation applicable to Tropical Climates. As evidence of study and attainments a candidate may present to the Syndicate (1) any dissertation, memoir, or other record of work carried out by himself on a subject connected with Tropical Medicine or Hygiene; (2) any Certificate or Diploma in Public Health or Sanitary Science he may have obtained from a recognised Examining Body. Such evidence will be considered by the Syndicate in determining whether he is qualified for admission to the examination and by the examiners in determining whether, if admitted, he shall be included in the list of successful candidates.

The examination will be partly in writing, partly oral, and partly practical and clinical (the clinical part will be conducted at a hospital for tropical diseases, at which cases will be submitted for diagnosis and comment), and will have reference to the nature, incidence, prevention, and treatment of the epidemic and other diseases prevalent in tropical countries. Every candidate who passes the examination to the satisfaction of the examiners will receive from the University a diploma testifying to his knowledge and skill in tropical medicine and hygiene.

The fee for the examination is £9 9s., and applications should be addressed to Dr. Graham-Smith, Medical Schools, Cambridge.

University of London.—Candidates for the M.D. degree may offer State medicine as a subject in which to graduate. They must send to the Academic Registrar with their forms of entry certificates (i.) of having, subsequently to having obtained a registrable qualification to practise Medicine, attended a course of practical instruction in a laboratory or laboratories, British or foreign, approved by the University, in which chemistry, bacteriology, and the pathology of the diseases of animals transmissible to man are taught; such course to extend over a period of not less than six months and to consist of at least 240 hours, of which not more than one-half shall be devoted to practical chemistry. (ii.) Either of having, subsequently to having obtained a registrable qualification to practise Medicine, during six months (of which at least three months shall be distinct and separate from the above-mentioned period of laboratory instruction) been diligently engaged on not less than 60 working days in acquiring a practical knowledge of the duties, routine and special, of Public Health Administration under the supervision of a person recognised by the University as entitled to grant certificates. Or of having held for a period of not less than three years an appointment as Medical Officer of Health of a Sanitary District within the British Dominions, and having a population of not less than 15,000. (iii.) Of having, subsequently to having obtained a registrable qualification to practise Medicine, attended at least twice weekly during a period of not less than three months a practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration. In connexion with this degree the various metropolitan medical schools hold regular classes under teachers of Public Health and Sanitary Science, such instruction being also used to obtain the various diplomas of other Universities and of those Royal Corporations which grant them.

University of Durham.—Candidates for the degree of Bachelor of Hygiene (B.Hy.) must be at least 22 years of age, registered, and a graduate in Medicine of a recognised university. They must spend six months at Newcastle-upon-Tyne studying Comparative Pathology, Practical Bacteriology, Sanitary Chemistry, and Physics, and have to pass an examination in Sanitary Chemistry, Physics, Comparative Pathology, Sanitary Legislation, Vital Statistics, Nosology, Climatology, Meteorology, Distribution of Health and Disease, Sanitary Medicine and Practical Hygiene. The fee for the examination for the degree of B.Hy. is £10 10s. and for the degree £6 6s. Candidates for the degree of Doctor of Hygiene (D.Hy.) must have acquired the degree of Bachelor of Hygiene, must for two years subsequently have been engaged in Public Health administration, or in research work relating to Public Health. The fee for the examination for the degree of D.Hy. is £5 and for the degree £10. The regulations for examination for the Diploma in Public Health (D.P.H.) are the same as those for the degree of Bachelor of Hygiene, except that the candidate is not required to be a graduate in Medicine of a recognised University and the course of study need not be passed at Newcastle-upon-Tyne. The fee for the examination is £10 10s. and for the diploma £3.

Victoria University of Manchester.—An examination in Public Health is held twice yearly. The examination is in two parts and is written, oral, and practical. Candidates may present themselves for Parts I. and II. separately or at the same time provided that no candidate be admitted to Part II. unless he has already passed in Part I. No candidate's name will be published until he has satisfied the examiners in both parts of the examination. The fee for each part is £5 5s., and must be paid on or before July 1st in each year. For any subsequent examination in the same part the fee will be £3 3s. Every candidate who has passed both parts of the examination to the satisfaction of the examiners, and who is legally registered, will receive a Diploma in Public Health. The examination will begin about the end of March and the middle of July in each year. Holders of the Diploma in Public Health are eligible for examination for the Certificates in School Hygiene and Factory Hygiene after attending the prescribed periods of study and hospital practice.

University of Birmingham.—The University grants a degree of B.Sc. in Public Health and also a Diploma in the

same subject on the following conditions: Graduates in Medicine of this University may become candidates for the degree of Bachelor of Science in Public Health by conforming to all the requirements laid down for candidates for the Diploma in Public Health, except that after graduating in Medicine all courses of study must be taken out in the University, and they must, in addition, have attended a three-months' course of Geology in the University. The examinations will be held in the months of March and June and will consist of two parts, each part being written, oral, and practical. No candidate will be allowed to pass Part II. until he has passed Part I. Candidates may enter for Parts I. and II. separately or at the same time. The fee for each part of the examination is £5. Medical Officers of the Royal Navy who have attended courses in Hygienic Chemistry, Bacteriology, and Public Health at the Naval Medical School, Greenwich, will be admitted to the examinations for the Diploma in Public Health, whether they have previously been students at the Birmingham School or not; and the same applies to officers of the Royal Army Medical Corps who have studied Chemistry and Bacteriology at the Staff College and pursued the further course of study approved by the General Medical Council.

University of Liverpool.—The University grants a Degree in Hygiene (M.H.) and a Diploma (D.P.H.), and every facility is afforded for training in Sanitary Science and State Medicine. The curriculum for the Degree extends over a period of two years, the first of which is devoted to laboratory instruction and practical classes (including those for the Diploma); the second being devoted to advanced study and research. The D.P.H. curriculum fees are: Chemistry, £5 5s.; Bacteriology, £5 5s.; Practical Sanitation, £15; Infectious Diseases, £3 3s. The courses may be taken out at any time, and students are allowed to work daily in the laboratories.

The University grants a Diploma in Tropical Medicine. Three courses of instruction are given every year. Two of these last for three full months—the Lent Course from Jan. 6th to April 5th and the Autumn Course from Sept. 15th to Dec. 13th. The Third Course, an Advanced Course, lasts one month, from June 1st to the 30th. At the end of each full course an examination is held by the University for its Diploma of Tropical Medicine (D.T.M.), which is open only to those who have been through the course of instruction of the school. The examination lasts three days and consists (1) of papers on Tropical Medicine, Tropical Pathology, and Tropical Sanitation and Entomology respectively; (2) of a clinical examination; and (3) of an oral examination. The advanced course consists entirely of Practical and Clinical Laboratory Work, given at the laboratory at the University. The fee for the full course of instruction is 13 guineas, with an extra charge of 10s. 6d. for the use of a microscope if required. The fee for the examination is 5 guineas. Applications should be made to the Dean of the Medical Faculty, University of Liverpool. Two University Fellowships of £100 a year each are open to students of the school, amongst others. Accommodation for research work is to be had at the University Laboratory. The Mary Kingsley Medal is awarded by the school for distinguished work in connexion with Tropical Medicine.

University of Leeds.—The University grants a Diploma in Public Health, and every facility is afforded for training in Sanitary Science and State Medicine. The examination, which is held twice in each year—namely, in June and December—is in two parts, and is written, oral, and practical. Candidates may present themselves for Part I. (a), Part I. (b), and II. separately or at the same time, provided that no candidate be allowed to pass in Part II. unless he has already passed in Part I. Fees—The fee for each part is £5 5s., and for any subsequent examination in the same part £3 3s. Instruction in Sanitary Chemistry and Bacteriology is given in the second and third terms. Practical work under arrangement with the Leeds City Council. Prospects can be obtained from the Dean of the Medical School.

University of Bristol.—Diploma in Public Health. Candidates must be at least 23 years of age, shall be fully registered medical practitioners of not less than 12 months' standing as such, and shall have passed the examination prescribed by regulation. The examination is divided into two parts. The subjects of the First Part are Chemistry as

applied to Public Health and Pathology and Bacteriology. Candidates for the First Part shall, during six months after having obtained a registrable qualification, have received practical laboratory instruction in Hygienic Chemistry, in Bacteriology, and in the Pathology of the Diseases of Animals Transmissible to Man. The subjects of the Second Part are: Public Health and Epidemiology, Sanitary Law, Vital Statistics, and Sanitary Reporting.

For information as to Post graduate instruction apply to the Director of Post-graduate Studies, Professor Walker Hall.

University of Edinburgh.—Two degrees in Science in the Department of Public Health are conferred by the University of Edinburgh—viz., Bachelor of Science in Public Health and Doctor of Science in Public Health. A Diploma in Tropical Medicine and Hygiene is also granted. Candidates for the degree of B.Sc. in Public Health must be graduates in Medicine of a recognised University, and must pass two examinations, for the first of which they must, after graduation in Medicine, have worked for at least 20 hours per week during a period of not less than eight months, of which at least five consecutive months must be in the Public Health Laboratory of the University of Edinburgh and the remainder either there or in a laboratory recognised by that University; they must also have attended courses of instruction in Physics and Geology in some Scottish University. Candidates are not admitted to the Second Examination sooner than six months after having passed the First Examination, nor sooner than 18 months after having taken their degree in Medicine, and they must have attended two separate courses in Public Health in some University of the United Kingdom or in such medical school or Indian, Colonial, or Foreign University as may be approved for the purpose by Edinburgh University, each course consisting of 40 lectures, at least; one of which courses shall deal with medicine and the other with engineering, each in its relation to public health. The subjects of examination include Laboratory work, Physics, Geology, Medicine in its application to Public Health, Sanitation, Sanitary Law, and Vital Statistics. Graduates who have held the degree of B.Sc. in Public Health from the University of Edinburgh for a term of five years may offer themselves for the degree of D.Sc. in Public Health in that University. They must then present a Thesis and pass an examination in Public Health. The fees are £3 3s. for the First and £3 3s. for the Second B.Sc. Examinations, and £10 10s. for the degree of D.Sc.

University of Aberdeen.—The Diploma in Public Health (D.P.H.) is conferred only on graduates in Medicine of a University in the United Kingdom not less than 12 months after medical graduation. Every candidate must produce evidence of having complied with the following requirements: (1) A course or courses of instruction consisting of not fewer than 60 meetings dealing with public health in relation to the administrative and other duties of a medical officer of health, such course or courses to be given by a teacher or teachers in the department of public health of a recognised medical school. (2) Practical instruction within a laboratory or laboratories approved by the University, in (a) Bacteriology, (b) Physics and Chemistry, (c) Parasitology, such instruction to extend over not less than six months or two academic terms. (3) Practical instruction, Clinical and Administrative, within (a) a hospital for general infectious diseases—not less than thrice weekly; (b) a hospital or sanatorium or treatment centre for tuberculosis—not less than once weekly; (c) a hospital or treatment centre for venereal diseases—not less than once weekly; such instruction in each group to extend over three months. (4) Practical instruction and experience during not less than three months in the duties, routine and special, of public health administration, under the personal supervision of a medical officer of health or other medical officer, or, alternatively, that the candidate has held, within the British Dominions, for a period of not less than three years, an appointment as medical officer of health of a sanitary district with a population of not less than 15,000. (5) Practical instruction in: (a) Mother and Child Welfare at a Centre or Centres in a Welfare Authority—not fewer than approved by a Local or Sanitary Authority—not fewer than ten meetings; (b) School Hygiene and Medical Inspection of School Children—not fewer than six meetings; (c) Drawing and Interpretation of Plans—not fewer than six meetings. The fee for the examination is £4 4s. for each part, or £8 8s. for the whole examination.

University of Dublin (Trinity College).—The Diploma in Public Health is conferred, after examination, on the following conditions. The candidate must be a registered medical practitioner and have obtained a registrable qualification at least nine months before the second part of the examination. The candidate must have completed, subsequently to obtaining a registrable qualification, four months' practical instruction in a chemical and bacteriological laboratory, or laboratories, approved by the University, must have studied practically outdoor sanitary work for six months under an approved officer of health, and must have attended for three months at a fever hospital where opportunities are afforded for the study of methods of administration. A special prospectus and a list of recognised laboratories may be obtained by application to the Registrar of the School of Physic, Trinity College, Dublin.

National University of Ireland.—At this University there is a Diploma in Public Health and a B.Sc. in Public Health. The Diploma may be granted to matriculated or non-matriculated students of the University who shall have completed approved courses of study and shall have passed the prescribed examinations, provided that it shall not be granted except to a registered medical practitioner. Candidates may present themselves for the examination after an interval of not less than 12 months from the time of obtaining a registrable qualification. The curriculum extends over a period of not less than nine calendar months. Every candidate must produce a certificate that he has attended practical instruction in a laboratory, approved by the University, in Chemistry, Bacteriology, and the Pathology of the diseases of animals transmissible to man. The examination consists of two parts, which may be passed separately or together. Part I. comprises the following subjects: Chemistry, Meteorology and Climatology, and Sanitary Engineering and Architecture. Part II. comprises the following subjects: Bacteriology, Hygiene, Sanitary Law, and Vital Statistics. The examination in each part will be oral and practical as well as written.

For the B.Sc. in Public Health a candidate shall not be admitted unless he (a) shall have received the degrees of M.B., B.Ch., and B.A.O. at least one year previously; (b) shall have pursued an approved course of study in the Faculty of Medicine; and (c) shall have passed the prescribed examination. In addition to D.P.H. course the candidate will be required to take up (1) a Special Course of Pathology; (2) Bacteriology; and (3) Advanced Course in Hygiene. Each of these courses lasts three months.

University of Belfast.—A Diploma in Public Health is given by examination. Every candidate must produce evidence that, after obtaining a registrable qualification, he has during six months received practical instruction in an approved laboratory in which Chemistry, Bacteriology, and the Pathology of the diseases of animals transmissible to man are taught. After obtaining a registrable qualification every candidate must produce evidence that he has attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration. The examination must have extended over not less than four days, one of which shall have been devoted to practical work in a laboratory, and one to practical examination in, and reporting on, subjects which fall within the special outdoor duties of a medical officer of health. The examination will be held once yearly, Part I. in March and Part II. in June. The first part of the examination will have reference to the general principles of sanitary science, and the second part to State Medicine and to the applications of Pathology and Sanitary Science. The fee for each part is 1 guinea.

Royal College of Physicians of London and the Royal College of Surgeons of England.—The following are the regulations for obtaining the Diploma in Public Health: the examination consists of two parts. The first part of the examination takes place in January and July, and the second part in January and July. The fee for each part is £10 10s., except for those who are diplomates of the Royal Colleges, who pay £5 6s. for each part. A candidate intending to present himself must give 14 days' written notice to the Secretary, at the Examination Hall, Queen-square, London, W.C.1. He will be admissible to examination in Part I. on producing evidence (1) of having been in possession of a registrable qualification for at

least 12 months; and (2) of having attended thereafter practical instruction in a laboratory recognised by the Examining Board in England for at least 240 hours during a period of six months. A candidate will be admitted to Part II. of the examination on producing evidence (1) of having been diligently engaged in acquiring a practical knowledge of Public Health administration during six months under certain specified conditions; and (2) of having attended during three months the clinical practice of a hospital for infectious diseases.

Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, Royal Faculty of Physicians and Surgeons of Glasgow.—All candidates for the Diploma in Public Health must have a qualification which has been registered under the Medical Acts. Candidates must have attended not less than four calendar months' practical instruction in Chemistry and Bacteriology in a recognised laboratory or laboratories, must have studied outdoor sanitary work for six months under a medical officer of health or other sanitary officer; and must give evidence of attendance for three months at the practice of a Hospital for Infectious Diseases, at which he has received instruction in the methods of administration. The examination consists of two parts, and candidates may enter for both at one period or for either separately. The First Part includes (a) Laboratory Work (Chemistry and Bacteriology), (b) Physics and Meteorology; and the Second Examination embraces (a) Report on Premises visited, (b) Examination at Fever Hospital, (c) Examination at Public Abattoir, (d) Written and Oral Examinations on Epidemiology and Endemiology, (e) Vital Statistics and Sanitary Law, and (f) Practical Sanitation. The fee is 12 guineas for both examinations, or 6 guineas for either of them. A fee of 3 guineas is payable by rejected candidates for either examination. The examination is held twice yearly, in May and October. The published regulations provide detailed synopses of the subjects of examination. The Registrar for Edinburgh is Mr. D. L. Eadie, 49, Lauriston-place, and for Glasgow Mr. Walter Hurst, 242, St. Vincent-street.

Royal College of Physicians of Ireland and Royal College of Surgeons in Ireland.—Every candidate for the Diploma in Public Health must be a registered medical practitioner. He must subsequently to qualification (1) receive four months' laboratory instruction in Chemistry, Bacteriology, and the Diseases of Animals transmissible to man; and (2) during six months practically study outdoor sanitary work under a medical officer of health, and shall as an additional requirement attend a hospital for infectious diseases. Candidates are examined on four days, commencing on the first Monday of February, May, and November. The examination comprises the following subjects:—Hygiene, Chemistry, Meteorology and Climatology, Engineering, Vital Statistics, Sanitary Law, and Bacteriology. The fee for the examination is £10 10s. For further particulars apply to Alfred Miller, O.B.E., Secretary, Committee of Management; Office, Royal College of Surgeons, Dublin.

DIPLOMAS IN PSYCHOLOGICAL MEDICINE.

THE needs for Schools of Psychiatry were well stated two years ago in the annual report of the Board of Control, when attention was called to deficiencies in the arrangements as at present organised for the treatment of persons suffering from mental disorder, especially in its early stages. During the two years that have elapsed both the loss to the country and the hardship to individuals resulting from insufficient attention to incipient mental cases have been recognised by the medical profession and all sections of the thinking public, so that any educational development improving the scientific position of psychological medicine will meet with warm approval.

Diplomas in Psychological Medicine, though of comparatively recent date, have been instituted at various centres for some ten years, while affiliation of mental clinics to the teaching in general hospitals has been much recommended. When this takes place there will be no dearth of suitable applicants for posts at asylums, for many young men can then be trained to take up the work in sympathetic

and scientific spirit. But before the lunacy service can become attractive, the views of the Board of Control, which have been stated to the Visiting Committees of Asylums, must receive practical expression by a general improvement in salaries, in accommodation for married officers, and by the provision in asylums for the more effective treatment upon modern lines of recoverable cases. The following bodies have now arranged to grant diplomas in psychological medicine or psychiatry—namely, the Universities of Manchester, Leeds, Edinburgh, Cambridge, Durham, and London, and the Royal College of Physicians of London. The regulations for obtaining these diplomas point to much similarity in the scope of the examinations, though there are differences in the duration of the courses and the syllabus, details of which can be obtained from the various examining bodies.

The necessity for raising the standard of the training for Assistant Medical Officers in asylums, and of affording facilities for such training, is very real. If the authorities give proper preference to the candidates for vacancies who possess diplomas or degrees in mental disease the status of this branch of the medical profession will be automatically raised, and pay and conditions of service will have to be made commensurate. It is necessary that the Authorities should make arrangements to grant study-leave on full pay to their Assistant Medical Officers, especially if it is the object of these officers to obtain a diploma which they were previously without; and augmented salary might well be paid to successful examinees. In the face of the facts acquired in recent years as to mental health, it is necessary that psychological medicine should now form an integral if special part of medical education, so that no university should willingly be without such an organic unit as a School of Psychiatry.

DENTAL SURGERY.

ANYONE who is on the Medical Register is entitled to practise as a dentist, although he cannot register as such without a licence in dentistry; but it is of eminent advantage to take the L.D.S., otherwise few dental appointments at general or special hospitals or dispensaries are available. The subjects beyond those included in the general qualification are—Dental Anatomy and Physiology (Human and Comparative), one course; a separate course of Dental Histology, including the preparation of microscopical sections; Dental Surgery, one course; a separate course of Practical Dental Surgery; a course of not less than five lectures on the Surgery of the Mouth; Dental Mechanics, one course; a course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns; Dental Metallurgy, one course; a course of Practical Dental Metallurgy; Practice of Dental Surgery at a recognised school, two years, and a certificate of having been engaged during a period of not less than two years in acquiring a knowledge of Dental Mechanics (this may be obtained by apprenticeship to a duly qualified dental practitioner or in the mechanical department of a recognised dental hospital). The Dental Schools in London are the Royal Dental Hospital of London, the National Dental Hospital, Guy's Hospital Dental School, and the London Hospital Dental School. Most of the large provincial towns, where there are medical schools, have now dental hospitals.

The registration of Dental Students is carried on at the Medical Council Office in London in the same manner as the existing registration of medical students, and subject to the same regulations as regards Preliminary Examinations. Candidates for a diploma in Dental Surgery must produce certificates of having been engaged during four years in professional studies, including two years' instruction in mechanical dentistry. The two years of instruction in mechanical dentistry, or any part of them, may be taken by the dental student either before or after his registration as a student. When a student can show evidence of regular pupillage in mechanical dentistry to a registered practitioner prior to the passing of a preliminary examination he may be allowed to antedate for a period not exceeding one year prior to the passing of a preliminary examination. The recommendations as to the

course of study and examinations adopted by the General Medical Council in November, 1909, are under revision by the Council, but consideration of them is postponed until the Departmental Committee on the Dentists Act has reported.

It is necessary for anyone practising Dental Surgery in this country to be on the Register, and no foreign qualifications are recognised, except the Dental Diploma granted in Belgium after examination by the Provincial Medical Commission, provided the holder has obtained the grade of "Candidate in Medicine" at one of the four Belgian Universities. Persons with Colonial and Foreign qualifications which have been obtained after a four years' curriculum can apply for special registration. Certain dental qualifications granted in Australia and New Zealand are also registrable. The Royal Colleges of the United Kingdom and ten of the Universities grant degrees or licences in Dental Surgery.

THE REGISTERING BODIES IN DENTISTRY.

The Royal College of Surgeons of England grants a diploma in Dental Surgery under the following regulations, which apply to all candidates who have registered as dental students after Jan. 1st, 1897. Candidates are required to pass three examinations: the Preliminary Science Examination, the First Professional Examination, and the Second Professional Examination. I. Preliminary Science Examination.—This is identical with Part I. of the First Examination of the Examining Board in England. Candidates who commenced professional study on or after Oct. 1st, 1913, must pass the Preliminary Science Examination before commencing the courses required for the Second Professional Examination. II. The First Professional Examination.—The candidate must produce evidence of instruction in Dental Metallurgy and Practical Dental Mechanics. The Examination consists of: Part I. (Mechanical Dentistry) and Part II. (Dental Metallurgy), the examination in Dental Metallurgy being by written paper. The parts may be taken together or separately. III. The Second Professional Examination.—This is divided into two parts: (a) the General, (b) the Dental. The General part must be passed before the Dental portion. The instruction is obtained partly at a General Hospital and partly at a Dental Hospital.—The Second Professional Examination consists of: Part I. General Anatomy and Physiology, General Surgery and Pathology; Part II. Dental Anatomy and Physiology, Dental Pathology and Surgery, and Practical Dental Surgery. There is a written and viva voce examination in each part and a practical examination as well in Part II. Exemption from the Preliminary Science Examination is granted to candidates who have passed an Examination in Chemistry and Physics for a degree in Medicine at a University in the United Kingdom, in India, or in a British colony. Exemption from Examination in Anatomy and Physiology is granted to candidates who have passed the Second Examination of the Examining Board in England or the corresponding Examination for any degree or qualification in Medicine or Surgery registrable under the Medical Act of 1886. Exemption from Examination in General Surgery and Pathology is granted to candidates who have passed the Examination in Surgery of the Examining Board in England or the corresponding Examinations of the Colleges and University above mentioned. The fee for the diploma is 20 guineas, and is payable as follows:—Preliminary Science Examination, for each admission to Part I., £3 3s.; Part II., £2 2s. First Professional Examination, for each admission to Part I., £4 4s.; Part II., £2 2s.; Second Professional Examination, for each admission to Part I., £4 4s.; Part II., £5 5s. Synopses of examinations and all further information can be obtained from the Secretaries, Examination Hall, Queen-square, London, W.C.1.

Royal College of Surgeons, Edinburgh.—Regulations giving a list of Preliminary Examinations recognised for obtaining the Licence in Dental Surgery, as well as of the subjects of the Professional Examinations, may be obtained from Mr. D. L. Kadie, Clerk to the Royal College of Surgeons, at 49, Lauriston-place, Edinburgh. Candidates must produce certificates of having, subsequently to the date of registration, been engaged for four years in professional studies and of three years' instruction in Mechanical Dentistry from a regis-

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tered dental practitioner, except in the case of previously registered medical practitioners, when two years will be considered sufficient. Candidates must also have attended a course of instruction at a University or in an established school of medicine or in a provincial school specially recognised by the College as qualifying for the Diploma in Surgery. In addition they will be required to have attended a recognised dental hospital, or with teachers recognised by the College, special courses of lectures and instruction, in Anatomy and Physiology (Human and Comparative), Surgery, Pathology, Materia Medica, Dental Histology, and Practical Dental Mechanics and Metallurgy; two years' attendance at a dental hospital or the dental department of a general hospital recognised by the College. Practical instruction in Mechanical Dentistry from a registered Dentist, or in the Mechanical Department of a recognised Dental Hospital and School, for three years. Candidates who have passed the First and Second Examinations for the Triple Qualification will be exempt from the First Dental Examination, and will have the advantage of being admissible either to the Final Dental Examination or to the subsequent Examination for the Triple Qualification, or to both. But the First Dental Examination will not be held as equivalent to the First and Second Triple Examinations, and will admit to the Final Dental Examination only. Candidates who are Licentiates of this College or who may be registered medical practitioners will be required to produce certificates of attendance on the special subjects only and will be examined in these only for the dental diploma. First Professional Examination: The candidate must have attended the required courses. The examination embraces (1) Chemistry and Physics; and (2) Anatomy and Physiology. The fee is £5 5s. for the complete examination, and £3 3s. is payable for each division. In all cases of rejected candidates the fee for re-entry is £3 3s. Second Examination: The candidate must have attended the remaining courses of the curriculum, must produce certificates showing that he is 21 years of age, and must pay a fee of £10 10s. for re-entry £5 5s. The examination embraces (1) Surgery and Medicine; and (2) the special subjects of Dental Anatomy and Physiology, Dental Surgery and Pathology, Dental Materia Medica, Dental Mechanics and Dental Metallurgy, with a practical as well as the written and oral examinations in the subjects of Dental and Oral Surgery, Pathology, and Mechanics. The candidate will be tested in the Treatment of Dental Diseases, in Operative Dentistry, the Administration of Anesthetics, Orthodontics, and in Prosthetic and Mechanical Dentistry. Candidates who claim exemption from the First Dental Examination on the ground of having passed the First and Second Triple Qualification Examinations or other recognised examinations will, before being admitted to the Second Dental Examination, be required to pay the total fee of £15 15s. payable for the dental diploma. Fees and schedules must be lodged with the Clerk not later than one week before the examination.

Higher Dental Diploma.—The College grants a Higher Dental Diploma which is registrable in the Dentists Register as an additional qualification. Every candidate for the Higher Dental Diploma shall produce evidence that he has been engaged in the study or practice of his profession as a Registered Dentist for at least one year subsequent to his having obtained the Licence in Dental Surgery specially or a Licence or Qualification in Dental Surgery specially recognised by the College. Particulars as to the examinations can be obtained from Mr. D. L. Eadie, Clerk to the Royal College of Surgeons, 49, Lauriston Place, Edinburgh. The fee payable by Licentiates of the College is £15 15s. For all other candidates £21. A fee of £10 10s. is retained for examination expenses in the case of referred candidates.

The examination embraces the following branches of Dental Science and practice: Dental Surgery, Anatomy, Pathology and Bacteriology, Prosthesis, Anæsthesia, and Dental Radiology. The examination will be clinical and practical as well as written and oral. Candidates will be expected to show a high degree of knowledge and skill.

Royal Faculty of Physicians and Surgeons of Glasgow.—The regulations as to certificates, curriculum, number, and subjects of examinations, fees, &c., are in effect similar to those of the Royal College of Surgeons of Edinburgh, but embrace Dental Bacteriology. Candidates can enter for the First Examination in three divisions, the first embracing

Physics and Chemistry, the second Dental Metallurgy and Dental Mechanics, and the third Anatomy and Physiology. The examination in Dental Mechanics is practical; and there is at the Final Examination an examination in Practical Dentistry conducted in a dental hospital. Copies of regulations, &c., to be obtained from Mr. Walter Hurst, Registrar, Faculty Hall, 242, St. Vincent-street, Glasgow.

Royal College of Surgeons in Ireland.—Candidates for the Licence in Dental Surgery are required to pass two professional examinations. Before the First Examination the candidate must produce evidence of having attended courses in Theoretical and Practical Chemistry, including Metallurgy and Physics, at a recognised institution; of having been registered as a medical or dental student by the General Medical Council; and of having attended courses of instruction in the following subjects at a recognised school of medicine: (a) Anatomy Lectures; (b) Dissections with Demonstrations; (c) Physiology, including Dental Physiology and Histology, Human and Comparative; (d) Practical Physiology and Histology, including Dental Physiology and Histology, Human and Comparative. Before the Final Dental Examination the candidate must have been engaged during a period of two years in acquiring practical familiarity with the details of Mechanical Dentistry under the instruction of a registered dentist, or under the direction of the superintendent of the Mechanical Department of a recognised Dental Hospital, and have attended, at institutions recognised by the College for the purpose, the following courses of instruction: (a) Dental Surgery and Pathology, Orthodontia, and the Materia Medica and Therapeutics applicable to Dental Surgery. Lectures. Two courses. (b) Dental Mechanics. Lectures. Two courses. (c) Dental Anatomy. Lectures. One course. (d) The practice of a Dental Hospital, or of the Dental Department of a General Hospital. Two years. He must also have attended Clinical instructions at a recognised General Hospital during the ordinary teaching sessions (nine months), and have been engaged during four years in the acquirement of professional knowledge subsequently to the date of registration as a medical or dental student. One year's bona-fide apprenticeship with a registered dental practitioner, after being registered as a medical or dental student, may be counted as one of the four years of professional study. He must be 21 years of age.

In the First Dental Examination candidates will be examined in (A) Physics and Chemistry, including Practical Chemistry and Metallurgy. (B) Anatomy, Physiology, and Histology—General and Dental. All the subjects may be passed at the same time, or they may be passed in two groups, (A) and (B). The examination is partly written, partly *rirâ voce*, and partly practical.

In the Final Dental Examination candidates will be examined in General Pathology, Medicine, and Surgery; Dental Surgery, and Dental Pathology, with the Materia Medica and Therapeutics applicable to Dental Surgery; Dental Mechanics and Metallurgy; Orthodontia. Candidates must pass in all the subjects at one examination. The examination is partly written, partly *rirâ voce*, and partly practical, and includes the examination of patients and the performance of dental operations. Candidates are required to provide their own instruments and gold for filling. The First Dental Examination will commence on the first Mondays in the months of February, May, and November. The Final Dental Examination will commence on the second Mondays in the months of February, May, and November. The total fee for the Diploma in Dental Surgery is 20 guineas. Candidates must pay the fees for examinations from which they are exempted, unless when such exemptions have been granted in virtue of examinations passed before the Conjoint Board in Ireland.

University of Birmingham.—The teaching of Dentistry is undertaken by the University acting in association with the Birmingham Dental Hospital and the Birmingham Clinical Board. The instruction at the Dental Hospital is carried out under the direction of the University Dental Clinical Board, so that students may fully qualify themselves for the Dental Diploma (L.D.S.) of this and other universities and licensing bodies. There is a special and well-equipped Dental Museum and Laboratory. An Entrance Exhibition of value £37 10s. is awarded annually at the commencement of the winter session. The following are the regulations for Degrees in Dentistry:—1. The degrees conferred by the University are those of Bachelor and Master of Dental Surgery.

(B.D.S. and M.D.S.). 2. All candidates for these degrees must pass the same Matriculation Examination as that required from candidates for Medical Degrees. 3. The degree of Bachelor of Dental Surgery is not conferred upon any candidate who has not obtained a Licence in Dental Surgery. The candidate is not eligible for the degree until a period of 12 months has elapsed from the passing of his examination for the Licence in Dental Surgery. Of this period at least six months must be spent in the dental department of a general hospital approved by the University. 4. A. In addition to the Licence in Dental Surgery the candidate must produce evidence that he has attended the courses required by medical students of the University in the following subjects and passed the Examinations held in the same for Medical and Surgical Degrees: (a) Chemistry and Practical Chemistry, (b) Physics and Practical Physics, (c) Elementary Biology, (d) Anatomy and Practical Anatomy, and (e) Physiology and Practical Physiology. B. That he has passed the class examinations in: (f) One Special Course of Lectures on Medicine, (g) One Special Course of Lectures on Surgery, and (h) Pathology and Bacteriology. C. That he has attended courses and passed the class examinations in: (k) Dental Histology and Patho-Histology, (l) Comparative Dental Anatomy, and (m) Dental Surgery and Prosthetic Dentistry. D. That he has received instruction in the Clinical Examination of living cases at the dental department of a general hospital for a period of not less than six months. 5. The Final Examination will deal with the subjects in Classes C and D. 6. On the expiration of 12 months from the date of passing the Examination for the Degree of Bachelor of Dental Surgery, the candidate will be eligible for that of Master of Dental Surgery. 7. For this degree candidates will be required to submit a thesis containing original work and investigations in some subject connected with Dentistry, which thesis shall be submitted to examiners to be nominated by the Dental Advisory Board.

University of Bristol.—Candidates for the degree of Bachelor of Dental Surgery must be not less than 21 years of age and shall have pursued the courses prescribed by University regulations during not less than five years, of which three shall have been passed in the University, and shall have been registered as dental students by the General Medical Council. All candidates for the degree of B.D.S. are required to satisfy the examiners in the several subjects of four examinations. The First Examination: The subjects are Chemistry, Physics, and Zoology, and the curriculum extends over one year.* The Second Examination: The subjects are Dental Mechanics, Dental Metallurgy, and Dental Materia Medica, and the candidate shall produce evidence of having served for two years an approved pupillage in Dental Mechanics. The Third Examination: The subjects are Anatomy, Physiology, and Histology, Dental Anatomy, and Dental Histology. The Final Examination: The subjects are Medicine and Surgery, Dental Surgery (including Prosthetics), Operative Dental Surgery, and Dental Bacteriology. Degree of Master of Dental Surgery: Candidates shall be Bachelors of the University, shall present a Dissertation on some subject of Dental Surgery to be approved by the Examiners, and pass an examination in Dental Surgery. Diploma in Dental Surgery: Candidates need not be undergraduates, but shall be registered dental students before being admitted to any professional examination; the curriculum extends over four years. A two years' pupillage in Mechanical Dentistry is required, and four examinations must be passed, the subjects of which differ only from those of the B.D.S. in that Zoology is not required for the First Examination, and Medicine is not required for the Final Examination. Candidates who are already registered medical practitioners shall be further exempted from study and examination in Physics and Chemistry, Anatomy, Physiology and Histology, Medicine, and General Surgery.

University of Durham.—Every candidate for the Licence in Dental Surgery must be registered as a dental student. There are four Examinations. The subjects are:—First: (a) Chemistry; and (b) Physics. Second: (a) Dental Mechanics, Theoretical and Practical; (b) Dental Metallurgy,

Third: (a) Anatomy; (b) Physiology and Histology; (c) Dental Anatomy and Dental Histology; and (d) Dental Materia Medica. Final: (a) Surgery; (b) Dental Surgery, including Prosthetics and Orthodontia; (c) Operative Dental Surgery, Practical Examination; and (d) Dental Pathology and Bacteriology. A candidate before presenting himself for examination is required to furnish certificates of instruction in the following subjects, attended after registration as a dental student at recognised Colleges or Schools:—First Examination: Chemistry and Physics. Second Examination: Dental Mechanics and Dental Metallurgy. Third Examination: Anatomy, with Dissections; Physiology; Histology; Dental Anatomy and Physiology; Dental Histology; and Dental Materia Medica. Final Examination: Dental Hospital Practice (two years); General Hospital Practice (nine months); Medicine Lectures (two terms); Surgery Lectures (two terms); Dental Surgery and Pathology (a course of not less than 20 lectures); Dental Bacteriology (three terms); Operative Dental Surgery (not less than 12 lectures); and Anæsthetics (a course of not less than one month).

Before admission to the Final Examination each candidate must furnish evidence (1) of having attained the age of 21 years; (2) of having undergone a three years' pupillage in Mechanical Dentistry with a registered dentist; and (3) of having been engaged in professional study for at least four years subsequent to registration as a dental student. The examinations will be held concurrently with the medical examinations, and the fees payable by candidates are as follows: First Examination, £2 10s.; Second Examination, £2 10s.; Third Examination, £3 10s.; Final Examination, £3 10s.; fee for Licence, £3; total, £15. For re-examination: First Examination, £1 10s.; Second Examination, £2; Third Examination, £2 (in one part only, £1); Fourth Examination, £2. The practical examinations in dentistry will be conducted at the Newcastle Dental Hospital.

University of Leeds.—The degrees in Dental Surgery are Bachelor of Dental Surgery (B.Ch.D.) and Master of Dental Surgery (M.Ch.D.). All candidates for the degree of Bachelor of Dental Surgery shall be required to have passed the Matriculation Examination, to have pursued thereafter approved courses of study for not less than five academic years, two of such years at least having been passed in the University subsequently to the date of passing Parts I. and II. of the First Examination, and to have completed such period of pupillage or hospital attendance, or both, as may be prescribed by the regulations of the University. No candidate will be admitted to the degree who has not attained the age of 21 years on the day of graduation. The classes in the Department of Dentistry begin on Oct. 1st. The instruction in the Preliminary subjects of Chemistry, Physics, and Biology are given at the University in College-road. The classes in the other subjects and the systematic courses in Dental subjects are held in the School of Medicine of the University in Thoresby Place. The clinical instruction is given in the Dental Department of the Leeds Public Dispensary, which is affiliated with the University and recognised by the Royal College of Surgeons. Applications for the prospectus should be made to the Dean of the Faculty of Medicine.

University of Liverpool (Liverpool Dental Hospital Clinical School and School of Dental Surgery).—The University grants a Licence in Dental Surgery (L.D.S.) and degrees in Dental Surgery (B.D.S. and M.D.S.). The courses of systematic instruction are given in the University buildings, five minutes' walk from the Dental Hospital. The two institutions are now closely associated, and the management of the curriculum is in the hands of the Board of Dental Studies. The Dental Hospital, covering a site of 672 square yards, is equipped in each department with every modern accessory and receives constant additions. The laboratory is in charge of a skilled dental mechanic under the supervision of the Director of Dental Education and Dental Staff, and the students are able to undertake at the hospital the whole of their training in Mechanical Dentistry. The times of the lectures at the University are arranged to meet the convenience of students, thus allowing the maximum time for attendance upon Dental Hospital practice. Fees: The composition fees are as follows: Licence course (L.D.S.): Composition fee £58 10s., for the two course of other licensing bodies £61 10s., payable in two equal instalments, the first on entry, the second 12 months

* Candidates who have passed the Higher School Certificate approved by the Board of Education in these subjects will not be required to sit for the first examination for either the B.D.S. or the L.D.S., and will be regarded as having completed one year of study.

later. Two years' instruction in Mechanical Dentistry (pupillage) and two years' Dental Hospital Practice (combined), £100, or in two instalments of £52 10s. each. Degree course (B.D.S.): £57 10s. for all lectures (including Chemistry, Physics, and Zoology) in three instalments. Two years' dental hospital, £21; general hospital practice, £10 10s.; three years' mechanical instruction (pupillage), £105. The fees for tuition have now been increased by one-third. Further information may be had from the Director of Dental Education, Mr. W. H. Gilmour.

University of Manchester.—In the University of Manchester the Dental Department forms an integral part of the Faculty of Medicine. This contains a series of laboratories, lecture rooms, and museums which will bear comparison with those of any otherschool in the kingdom, and the fullest opportunities for study are offered to students preparing for any of the professional examinations. Instruction adapted to the requirements of students preparing for the B.D.S. Degree and the Dental Diplomas of the University, the Royal College of Surgeons of England, and of other licensing bodies is given during the Winter and Summer Sessions both at the University and at the Dental Hospital of Manchester adjoining the University. The required general hospital practice is taken at the Manchester Royal Infirmary. Women students are admitted to the classes in the Dental Department, and for them common rooms are provided. The composition fee for candidates for the University degree of Bachelor of Dental Surgery is 90 guineas, payable in two equal instalments at the beginning of the first and third years of studentship. The composition fee for candidates for the University Diploma in Dentistry is 80 guineas, payable in two equal instalments at the beginning of the first and third years of studentship. The composition fee for candidates for the L.D.S. of England is 90 guineas, payable in two equal instalments at the beginning of the first and third years of studentship. Students who have already served their apprenticeship with a private practitioner, and who propose to complete the final portion of their attendance at the University and at an approved dental hospital, will be required to pay the composition fee in two equal instalments at the commencement of the first and second years of studentship. The composition fee does not include the hospital fees, the examination fees, nor the fee for the conferment of the degree or the diploma.

National University of Ireland.—This University grants the degrees of Bachelor of Dental Surgery and a degree of Master of Dental Surgery. A student may not be admitted to the Degree of Bachelor of Dental Surgery unless a period of not less than four years shall have elapsed from the date of his matriculation, during which period he must have pursued an approved course of study of not less than nine terms. For the degree of Bachelor of Dental Surgery candidates must pass four examinations, the first two being the same as those for the first and second examination in Medicine. The subjects of the third examination are Dental and Practical Pathology, Dental Surgery and Dental Medicine, the subjects of the fourth being Dental Surgery and Pathology, Dental Mechanics, Operative Dentistry, Orthodontia, and Dental Materia Medica. A candidate for the degree of B.D.S. must produce evidence of having been engaged during a period of two years in acquiring a practical familiarity with the details of Mechanical Dentistry under the instruction of a registered dentist, or under professional direction in the mechanical department of a dental hospital approved by the University. A portion of or the entire period may be served before commencing study for the degree of B.D.S., but no portion so taken prior to commencement of study shall count as part of the four years of Dental Study. The degree of Master of Dental Surgery will not be granted until three years after the B.D.S. has been obtained.

Queen's University of Belfast.—At the beginning of next session a Department of Dentistry will be opened, and in due course the University expects to confer a Licentiate in Dental Surgery, a Bachelor of Dental Surgery, and a Master of Dental Surgery. Lecturers have been appointed in Dental Surgery, Dental Mechanics, Dental Metallurgy and Materia Medica, and Orthodontia.

University of Melbourne.—Degrees of Bachelor (B.D.Sc.) and Doctor of Dental Science (D.D.Sc.) are granted. Candidates for the former are required subsequently to matricula-

tion (which must include physics) to take a four years' course of study and to pass four examinations. They shall be apprenticed for not less than three years with a registered dentist in some part of the British Empire. Fee for the four years £100, payable in four equal annual instalments. Annual examination fee £5 5s. Candidates for the degree of Doctor must be Bachelors of Dental Science of at least two years' standing. The examination is partly written and partly oral. A thesis may be submitted.

University of Sydney.—A degree in Dental Surgery (B.D.S.) is granted after a four years' course following matriculation. A graduate in medicine is required to devote four terms to dental study before sitting for the degree of B.D.S. and a licentiate in dental surgery one additional year.

University of Adelaide.—The four years' course for the B.D.S. is regulated by similar conditions to that for the M.B., B.S. Four examinations are held in November of successive years. The fee for each ordinary examination is £3 3s., and for the degree £5 5s. Fees for the whole course amount to £95 11s.

McGill University, Montreal.—The degree of D.D.S. is granted on a four years' curriculum, the first year being that demanded of students in the Medical Faculty.

University of Toronto.—The degree of D.D.S. is granted on a four years' curriculum. Annual examinations are conducted under the joint auspices of the University and the Royal College of Dental Surgeons of Ontario. Concurrent courses may be run in medicine and dentistry extending over seven years.

University of Malta.—The University grants its diploma in dental surgery after examination to candidates producing evidence of four years' professional study and three years' instruction in mechanical dentistry.

TEACHING INSTITUTIONS IN DENTISTRY.

See also under Universities of Birmingham, Leeds, Liverpool, and Manchester above.

LONDON.

Royal Dental Hospital of London, School of Dental Surgery, Leicester-square.—A school of the University of London, and women are now admitted as students and are eligible for all hospital appointments and school prizes.—The school provides the special dental education required by the Royal College of Surgeons for the Licence in Dental Surgery. The general part of the curriculum may be taken at any general hospital. The hospital is open from 9 A.M. to 5 P.M., there being one staff for the morning and another for the afternoon of each day. Pupils are received for the training in dental mechanics recognised by the curriculum. The demonstrators at the commencement of each session give a course of lectures on Operative Dental Surgery. The six house surgeoncies are held for six months each and are open to all qualified students. The lecturers, in addition to their lectures, give special demonstrations on the Microscopy of Dental Anatomy and Dental Surgery. The lecturer on Dental Mechanics also gives practical demonstrations in the laboratory. There is an Entrance Scholarship in Chemistry and Physics of the value of £50. One Entrance Scholarship in Dental Mechanics and Metallurgy value £25. Scholarship in Dental Mechanics only. One Entrance Scholarship open to pupils of the Hospital only. One Entrance Scholarship of £25 in Dental Mechanics, open to pupils of private practitioners. The Saunders Scholarship of £20 and Saunders Prize of £5 awarded to second year students. The Storer Bennett Research Scholarship for Scientific Research in any branch of Dental Surgery, value £50, is awarded triennially. The Alfred Woodhouse Scholarship of £35 and the Robert Woodhouse Prize of £10 for Practical Dental Surgery. Prizes and certificates are awarded by the lecturers for the best examinations in the subjects of their respective courses at the end of the summer and winter sessions. Fee for two years' hospital practice required by the curriculum, including lectures, £70 in one payment, or £73 10s. in two yearly instalments. The curriculum requires two years to be passed at a General Hospital; the fee for this is about £63. Both hospitals can be attended simultaneously. For the lectures in Chemistry and Physics for the Preliminary Science Examination £13 13s. The fee for the instruction in Dental Mechanics and the two years' hospital practice required by the curriculum is £209 if paid

in one instalment, or 200 guineas if paid in three equal instalments. The fee for tuition in Dental Mechanics is £70 per annum; for one year's hospital practice £28. The Winter Session opens on Oct. 1st.

University College Hospital Dental School.—Corner of Great Portland and Devonshire-streets, W.—This Hospital and School has recently been thoroughly reorganised, and is now fully equipped with all the most modern appliances. Students are entered as students of University College Hospital, and, as such, attend the classes of Chemistry, Physics, Anatomy, and Physiology in University College, which is a few minutes' walk from the Dental Department in Great Portland-street, hitherto known as the National Dental Hospital. The First Dental School to admit Women Students. Practical courses to comply with the R.C.S. curriculum are held. Clinical Lectures and Demonstrations are given, and each student on entering passes through a preliminary course under a demonstrator. Two Entrance Exhibitions, of the value of £40 and £20, are open for competition. Prizes are open for competition at the end of each course of lectures. Fees are under revision. The Calendar, containing full information as to Lectures, Fees, Prizes, and Subjects for the Entrance Exhibitions may be had on application to the Dean, who attends the Hospital on Tuesday mornings at 10.30.

Guy's Hospital.—The work of the Dental Department begins daily at 9 A.M. both in the extraction rooms and in the conservation room. The Extraction Rooms: A new Dental Out-patient Department has been provided. There is ample accommodation for ordinary extractions and anæsthetic extractions, together with waiting- and retiring-rooms. Patients are admitted between 8.45 and 9.30 A.M., and are seen by the dental surgeon for the day, the staff demonstrator, the dental house surgeon, and the dressers. The Conservation Room is open from 9 A.M. till 5 P.M. It has recently been entirely remodelled and greatly enlarged, giving a floor space of over 6000 square feet. It affords accommodation for about 100 dental chairs, with the necessary equipment of the most modern type, for the use of the Dressers, who, under the supervision of the Staff, perform the various operations of Dental Surgery. The members of the staff attend every morning and afternoon to give demonstrations and otherwise assist students in their work in the Conservation Room and Prosthetic Laboratory. The Probationers' Laboratory is supervised by two of the staff demonstrators, and instruction is given in operative dentistry on a "manikin" to students during their first three months of clinical study. Students in Dental Prosthetics are received, and a graded, systematic, and full course of instruction, extending over two years, is carried out. Dental students have the opportunity of attending at this hospital the whole course of instruction required by the examining board for the L.D.S. Eng.—viz., two years' studentship in dental prosthetics, the special lectures and practice of the Dental Department, and the general lectures and practice of the Medical School. The fees for these two courses may be paid separately or together, or they may be combined with the fees required to be paid for the course for a medical diploma. Students who enter for a medical as well as a dental diploma are allowed to pursue their study of Dentistry during any period of their medical course most convenient to themselves without further charge. Four Scholarships in Dental Prosthetics of the value of £30 each are offered for competition annually, two in September and two in April, and prizes of the aggregate value of £40 are awarded for general proficiency and for skill in Operative Dentistry. The Newland-Pedley Gold Medal for Operative Dentistry is also awarded annually. A Dental Travelling Scholarship of the value of £100 is awarded every second year. Dental students are eligible for admission to the Residential College and enjoy the privileges of students in the Medical School. Application should be made to the Dean of the Medical School.

London Hospital.—This school is a part of the London Hospital and Medical College, and is fully equipped on the most modern lines and with the latest appliances. It provides a complete curriculum in all subjects for the L.D.S. Diploma, and is admirably adapted for the purpose of teaching. The Conservation Room is well lighted and ventilated and fitted with pump chairs of the latest pattern; the fountain spittoon

at every chair has been specially designed and has attached to it a saliva ejector, hot and cold water, compressed air, gas and electric current, also a swing bracket to carry the students' cabinet. Electric sterilisers are supplied in each department and motor engines where required. The School possesses in addition to the Theatres, Laboratories and Museums in the College, a special Museum of Dental Anatomy and Surgery, Operative Dentistry, Prosthetic and Extraction Rooms, and Laboratories for Practical Dental Metallurgy and Dental Prosthesis. A systematic course of instruction in Dental Prostheses is arranged for pupils. The up-to-date Laboratory contains every modern apparatus and is in charge of a skilled curator and his assistants. Connected with the Medical College and Dental School are a Library, Athenæum, Clubs' Union, Dining Hall with moderate tariff, Students' Hostel, and an Athletic Ground. For full particulars as to fees and course of study advised apply to the Dean, Professor William Wright, who will be glad to make arrangements for anyone wishing to see the Dental School and Medical College.

London (Royal Free Hospital) School of Medicine for Women.

—Full courses are arranged for women students for the study of dentistry, and in preparation for the Licence in Dental Surgery of the Royal College of Surgeons of England, at the London (Royal Free Hospital) School of Medicine for Women, in conjunction with the London Dental Hospital, Leicester-square, and the National Dental Hospital, Great Portland-street, W. The course is arranged as follows: First and second years: Chemistry, Physics, and Dental Mechanics. Third, fourth, and fifth years: Anatomy, Physiology, and Special Dental Courses, Courses in Medicine and Surgery, General Hospital Course, Dental Hospital Course. Bursary: The Council of the School will award annually (until further notice) an "Agnes Guthrie" Bursary of the value of £50 to a student fulfilling the required conditions, who enters for the full dental course. Candidates are required to send in applications on or before July 1st, to the Warden and Secretary, from whom a prospectus of the School and all particulars can be obtained.

PROVINCIAL.

Birmingham Dental Hospital, Great Charles-street.—Dean: Mr. W. T. Madin. The Dental Hospital was founded in 1858, and was recognised by the Royal College of Surgeons in 1880 for the teaching of Dental Students. Having an annual attendance of about 16,000 patients, it affords every advantage for students about to enter the profession to acquire a thorough practical knowledge, as required by the Medical Council. The present Hospital was opened on July 6th, 1905. It has accommodation for 50 students. The equipment is in accordance with the most modern requirements for the efficient teaching and practice of Dental Surgery. The operations performed annually average 35,000, including 5000 gold and other fillings, and many cases of crowns, bridges, porcelain inlays, and regulations. By arrangements with the Birmingham University and with the General and Queen's Hospitals the entire course of Lectures, Hospital Practice, &c., may be completed for an inclusive fee of £96 15s., or including Mechanical Papilage, £186. Examination fees for L.D.S. Birm., total £18. The instruments and materials necessary for Hospital Practice cost about £35. The Composition Fee for the courses required for the L.D.S. of the University, or any of the Corporations' alone, is £60, payable in two annual instalments at the commencement of the first and second years; that for the courses required for the L.D.S. and the Degree in Dentistry of the University is £75; that for the L.D.S. in combination with the M.R.C.S. and L.R.C.P. is £85; and that for the M.B., Ch.B., and D.S. is £95. All of these composition fees are payable in two annual instalments at the commencement of the first and second years. Each of these fees covers the cost of the courses given at the University for the qualifications indicated, but does not include fees for Hospital teaching. For two years' dental hospital practice the fee is 20 guineas, payable in two instalments of 10 guineas each at the commencement of the first and second (hospital) years respectively. For two years' mechanical papilage, 85 guineas, which may be paid in two annual instalments of 50 and 35 guineas respectively; mechanical pupils may join for a probationary period of one month, fee 5 guineas, which is deducted upon payment of the full amount. For

TEACHING INSTITUTIONS IN DENTISTRY.

[AUGUST 28, 1920]

general surgical hospital practice, lectures, and demonstrations: Surgery, two winters, £10 10s. One Entrance Scholarship is offered annually of the value of £37 10s. It is awarded to the student who, entering for the Dental Degree of the University in October, or having entered not earlier than the previous April, shall pass the best examination in the subjects studied during his apprenticeship. Candidates must be under the age of 21 years. Application for admission, together with a certificate of birth, must be sent to the Dean of the Medical Faculty, Mr. William F. Haslam, on or before Oct. 15th.

Leeds University School of Dentistry.—The School of Dentistry is fully equipped to provide training for Dental Students, and affords every opportunity for the student to prepare for any of the Dental Degrees or Diplomas. The Demonstrator of Operative Dental Surgery instructs students during their probationary course. At the completion of this training students have patients allotted to them by the Demonstrator, and have every opportunity of acquiring knowledge from the members of the Staff, two of whom are in attendance each day. The following prizes are awarded:—First year Students, value 2 guineas. Operative Dental Surgery Prize, value 5 guineas. Two prizes in Prosthetic Dentistry: (a) a prize, value 2 guineas, for first-year pupils; (b) a prize, value 5 guineas, open for competition to all Students. Extraction prize, value 2 guineas, open for competition to all Students. A prize in Orthodontics, value 5 guineas, is open to all students. All communications should be addressed to the Warden, School of Dentistry, The University, Leeds.

Dental Hospital of Manchester.—This Hospital is in association for teaching purposes with the University of Manchester and the Royal Infirmary, and is in the centre of a very large population. Courses of study are provided to meet the requirements of the various examining bodies, including those of the University of Manchester for the qualifications L.D.S. and B.D.S., and the L.D.S. of the Royal College of Surgeons of England. Clinical instruction is given by the members of the staff and by the honorary surgeons and demonstrators, and also by the clinical anaesthetists in the administration of nitrous oxide gas; a special class in anaesthetics is conducted by the clinical tutor in that subject, and a class for instruction in porcelain and gold inlay work by the demonstrator specially appointed for that work.

Ten prizes, varying in value from £2 to £12 12s., are awarded annually.

For the whole course of hospital instruction for the L.D.S. (including two years' mechanical training) the fee is £131 5s., paid in instalments. For the two years' Operative Course only, £25 5s., paid in two instalments. For the whole course of hospital instruction for the B.D.S. degree (including mechanical training), £168, paid in instalments. Additional practice in Dental Mechanics may be taken by pupils who have already received their mechanical training elsewhere, at a fee of £35 15s. for six months. All the courses of instruction are open to women students. Copies of the Prospectus will be forwarded on application to Mr. J. Hilditch Mathews, Dean.

Newcastle-upon-Tyne Dental Hospital and School.—This Hospital is centrally situated (within five minutes of the various colleges, infirmary, and railway station); the rooms are well lighted and thoroughly equipped for carrying on the work. Dental surgeons and an anaesthetist attend each morning. A tutorial dental surgeon is also in attendance. The Composition Fee for the special Dental Lectures and Dental Hospital Practice is £45 3s. if paid in one sum, or £46 4s. if paid in two instalments of £23 2s. The Composition Fee for the Lectures at the Colleges of Medicine and Science is 40 guineas; in addition to this there is a library and an athletic fee. Particulars of the fee for General Hospital Practice may be obtained from the Senior House Physician, Royal Victoria Infirmary, Newcastle-upon-Tyne. Merits and Certificates of Merit are granted to students showing certain standards of proficiency in the various classes at the Dental School. The prospectus of the Dental Hospital and School, containing full information, may be obtained from either Mr. J. T. Jameson, 12, Wilberforce-street, Newcastle-upon-Tyne, or Mr. James Colman, 13, Ellison-place, Newcastle-upon-Tyne, Vice-Dean.

Devon and Exeter Dental Hospital, 24, Southernhay, West, Exeter.—Established 1880.—The hospital is open on Mondays, Tuesdays, Wednesdays, Thursdays, and Fridays, and patients are admitted between the hours of 9 and 11 A.M. Students attend the practice of the hospital under the control of the medical officers. Honorary treasurer, Mr. J. M. Ackland; secretary, Mr. Albert G. Littlejohn.

SCOTLAND.

The Incorporated Edinburgh Dental Hospital and School.—The Edinburgh Dental Hospital and School is located in a spacious and well-equipped building at 31, Chambers-street and offers special advantages to dental students. The General Courses required for the Dental Diploma may be taken in the Medical School of the Royal Colleges of Physicians and Surgeons or in the University schools. The hospital attendance and clinical instruction are taken at the Royal Infirmary. The University, Medical Schools, and Royal Infirmary are within three minutes' walk of the Dental Hospital. The special courses, extending over two years, affords a student ample opportunity for a full acquaintance with every branch of dentistry. The hospital admits a limited number of indentured pupils. They receive their instruction in Mechanical Dentistry concurrently with the general and special courses. A premium of 60 guineas is payable with each such pupil. The practice and lectures of the hospital are recognised by, and qualify for, all the Licensing Boards. The cost of the hospital outfit of instruments is included in the Dental Hospital fee of £42. The minimum cost of classes and Diploma for the whole course of dental instruction amounts to £98 17s. Those students who desire to take a Medical and Surgical Diploma in addition to the L.D.S. have in this school admirable facilities for so doing. The triple qualification of the Royal College of Physicians and Surgeons of Glasgow is recommended. The minimum cost of Professional Education, the Triple Qualification, and the Licence in Dental Surgery amounts to £172 19s. The Higher Dental Diploma (H.D.D.) of the Royal College of Surgeons affords all opportunity of obtaining a higher qualification subsequent to registration. Further particulars can be obtained from the Dean, Mr. W. Guy.

Incorporated Glasgow Dental Hospital, 15, Dalhousie-street Glasgow.—The School is open to Men and Women Students, and Lectures are given on Dental Surgery, Operative Dental Surgery, Orthodontia, Dental Anatomy and Physiology, Pathology, Dental Histology, Dental Mechanics, Crown and Bridge work, Dental Metallurgy, Dental Bacteriology, and Anaesthetics. Lectures on general subjects required for Dentistry may be taken at the University or at one of the extra-mural schools where special provision is made for Dental Students. Composition fee for two years' Hospital Practice and Lectures special to Dentistry, £40 on entry or in two instalments of £21 each. Fees for Hospital Practice and Dental Lectures may be paid for separately, at a total cost of £43 1s. Full information may be had on application to the Dean.

Glasgow Royal Infirmary (Dental Department).—Mr. W. R. Taylor attends at the Royal Infirmary at 9 A.M. on Wednesdays and other days as arranged. The following course in the Dental Examination can be taken at St. Mungo's College: Anatomy, six months; Practical Anatomy, nine months; Physiology, six months; Chemistry, six months; Surgery, six months; Clinical Metallurgy, three months; Materia Medica, three months; and Surgery, six months; Dental Surgery, six months, and attendance for two years on the dental department of the hospital. The attendance on the Dental Clinic is free to students of the hospital.

IRELAND.

Incorporated Dental Hospital of Ireland, Lincoln-place, Dublin.—All Dental Students who have passed their First Dental Examination in the Royal College of Surgeons in Ireland (or an equivalent examination or examinations) are admissible to the Clinical Instruction and Special Demonstrations, courses of lectures are given at the hospital.

on Dental Surgery and Pathology, Mechanical Dentistry, the Administration of Anæsthetics, Orthodontia, Dental Anatomy, and Dental Materia Medica. Practical instruction is also given in Anæsthetics. In addition to the longer courses of hospital attendance, courses of three months' duration will be given to surgeons intending to practise in the Colonies or remote country districts, or in the Army and Navy.

Fees.—Dental Hospital Practice (each year), £18 18s.; Lectures, £5 5s. In addition to the above courses registered dentists who are members of the British Dental Association will usually be permitted to take out a three months' course for a fee of 6 guineas. The course in practical Dental Mechanics can be taken in the Hospital Laboratory. Further particulars can be obtained from the Dean.

DOMINIONS.

The Australian College of Dentistry, in connexion with the Melbourne Dental Hospital, trains candidates for the degrees of B.D.Sc. and D.D.Sc. Melb. Students indentured to the College pay £170 in two instalments of £85 each, or four instalments of £42 10s. The superintendent of the College is Mr. E. S. Fisher, L.D.S. D.D.Sc.

United Dental Hospital of Sydney was established in 1901 to provide facilities for the students attending the University Dental School. The fee payable by University students for the dental practice of the hospital is £6 6s. per annum. The secretary is Mr. H. A. Clarke, F.I.A.A.

The Dental Department of McGill University, Montreal, was opened in 1903 at the request of the Dental Association of the Province of Quebec as a section of the medical faculty. An out-patient clinic in dentistry at the Montreal General Hospital provides the clinical material. Particulars from the Registrar of the Medical Faculty.

The Royal College of Dental Surgeons of Ontario has a school of dentistry in connexion with the University of Toronto. Practical work is carried out in the infirmary and laboratories of the College.

REGISTRABLE COLONIAL AND FOREIGN MEDICAL DEGREES.

UNDER the Medical Act, 1886, a number of medical diplomas granted in British possessions entitle their possessors to be registered without further examination in the Colonial List of the (British) Medical Register. The condition attached to such registration is that the holder of the colonial diploma obtained it when he was not domiciled in the United Kingdom or in the course of a period of not less than five years during the whole of which he resided out of the United Kingdom. Some account of these will be given in a later issue of THE LANCET.

THE M.D. BRUSSELS FOR STRANGERS.

THE examination is arranged in three parts: No conditions of residence are needed; the time required for the three examinations seldom exceeds 10 or 12 days, and candidates who are unable to be so long away from home may take each part separately. The examinations are conducted in English through the medium of an interpreter (without additional charge). They take place on the first Tuesday in November, December, March, and May, and the second Tuesday in June. They are *exa voce*, but candidates may have a written examination by paying an additional fee of £1 for each test. This does not exempt them from the *exa voce* examination. Part I. includes general medicine; *materia medica* and pharmacology; general surgery; and the theory of midwifery. Part II. includes general therapeutics; pathology and morbid anatomy, and the use of the microscope; special therapeutics and medicine of internal diseases; special surgery; and mental diseases. Part III. includes public and private hygiene; medical jurisprudence; clinical medicine; clinical surgery; examination in operative surgery, consisting of some of the usual operations on the dead subject—viz., amputation, ligature of artery, &c.; ophthalmology; examination in midwifery, consisting of obstetrical operation on the mannequin (model of pelvis), and examination in regional anatomy with dissection; and bacteriology. The address of the Secretary of the Brussels Medical Graduates' Association is 41, Buckland-crescent, Hampstead, N.W. 3.

Annotations.

"Ne quid nimitis."

OUR FOOD FROM THE SEA.

IN his presidential address, delivered before the British Association for the Advancement of Science, at Cardiff, at the opening meeting on August 21st, Professor Wm. A. Herdman took for his subject Oceanography and the Sea Fisheries. His studies in this direction as professor of oceanography in the University of Liverpool are well known, and they bear on the future of the supplies of food from the sea. He pointed out that edible animals of the shore may exist in such abundance that an area of the sea may be more productive of food than a similar area of pasture or crops on land. A Lancashire mussel bed, for example, has been shown to have as many as 16,000 young mussels per square foot, and it is estimated that in the shallow waters of Liverpool Bay there are from 20 to 200 animals of sizes varying from a sandhopper to a plaice on each square metre of the bottom. After giving an interesting history of fisheries Professor Herdman spoke on the vexed question of productivity of the trawling grounds, especially those of the North Sea. The enormous increase of fishing power during the last forty years or so had reduced the number of large plaice, so that the average size of that fish caught in our home waters had become smaller, although the total number of plaice landed had continued to increase up to the year of the outbreak of war. Since then from 1914 to 1919 there has been, as Professor Herdman pointed out, the most gigantic experiment ever made in fishery researches by the closing of fishing grounds forced upon us by marine warfare. The effect is so far uncertain, but there are indications of an increase in fish population in certain areas, possibly owing to this less intensive fishing. There may be a lesson in this fact. The problem is to obtain some approximation to a census or valuation of the sea—of the fishes that form the food of man, of the lower animals of the sea-bottom on which many of the fishes feed, and of the plankton or contents of the upper waters which form the ultimate organised food of the sea—and many attempts have been made towards attaining this desired end. Statistics, however, as to the millions of tons of possible food in a sea area are not quite reliable when the fact is considered, as Professor Herdman explained, that all food-fishes are not equally nourishing to man, and all plankton and bottom invertebrates are not equally nourishing to a fish. A fat summer herring differs in essential ing to a fish. A fat summer herring differs in essential cod, which is almost destitute of fat. The assimilative and synthetic powers of fishes evidently differ. The point is emphasised that on these considerations the biologist requires the assistance of the physiologist and the bio-chemist. Our need, concluded Professor Herdman, is research, more research, and still more research. It is instructive to remember how the question of food-supply has occupied the minds of other scientific workers who have been elected to the distinguished post of president to the Association. We may recall Sir William Crookes's address before the Association at its meeting at Bristol in 1893, when he uttered his famous injunction that we should utilise the nitrogen of the air for fertilising purposes, and so increase the food-supply of the nation. That proposition has materialised, and great machinery is in progress for gaining nitrogen from the air and converting it into nitrate. War stimulated the process, which is now turned to the advantage of peace issues. The subject of fish supplies was referred to also in the address delivered at the Cardiff meeting by Professor J. Stanley Gardiner in the Zoological Section. He said, amongst other interesting things, that the abundance of mackerel is connected with the movements of Atlantic water into the British Channel and the North Sea, movements depending on complex astronomical, chemical,

and physical conditions. Their pabulum, as does ultimately that of all animals, resides in that living matter, which possesses chlorophyll for nutrition, commonly called plant. The plant life of the high seas consists of spores of algae, diatoms, and the like, whose abundance as food depends, in its turn, on the amount of the light of the sun—the ultimate source of all life. The British Association is this year again giving evidence of the significance of the application of pure science to human affairs.

"HOSPITALS ON THE RATES."

THE whole hospital question is an urgent one, and how to deal with it wisely remains the most important medical matter of the moment. In our Parliamentary columns last week we gave in full the clauses of the Ministry of Health (Miscellaneous Provisions) Bill, which deal with the assistance from the rates which Dr. Addison proposes should be made available. A week ago immediate financial aid in respect of arrears of repairs and replacements, accumulated during five years of warfare, seemed terribly urgent. Two successive gifts of a quarter of a million each from the Red Cross organisations left this huge need untouched. The announcement early in the week of the allocation to this purpose of £700,000 from the National Relief Fund will serve to meet pressing liabilities and give a little time in which to look quietly round and study the claims of the voluntary system versus hospital municipalisation. There are some three months before Parliament will return to its deliberations. In the meantime, every medical man and every thoughtful citizen concerned with health problems should read the provisions of Dr. Addison's Bill in conjunction with the Dawson Report. There are possible dangers in the Bill which must be safeguarded. As Clause 11 stands it may conceivably enable public opinion to shelve any proper organisation of medical services by merely patching up the worst holes in the existing structure. Improper use of the power given in the Bill to county councils and county boroughs might lead them to special commitments, antagonistic and detrimental to the carrying out of a larger scheme. It is a matter for serious consideration whether it is wise to confirm councils in these powers until a proper health authority has been set up. The difficulty might be met by limiting the operation of the hospital clauses to one year, thus making it a strictly emergency measure. We feel very strongly that it is not really in the public interest to give such wide powers of control over hospitals to municipal bodies, unless some adequate way of expressing, and maybe of enforcing, its opinion is given to the medical profession. The Dawson Report emphasised the vital importance of a sufficient representation of medical men on the health authority, proposing that the medical advisory council for each area should nominate a certain number of medical men for co-optation on the health authority. No one would wish to prevent enlightened municipalities from giving temporary grants to the hospitals within their area, but many people would prefer not to hand over to municipalities the power of building and controlling hospitals until after a general and well-considered policy has been formulated by Parliament.

THE LATE PROFESSOR POLITZER.

WITH Professor Adam Politzer, the report of whose death, at the age of 86, reaches us from Vienna, there has passed away the last of a brilliant group of investigators, scientists, and physicians who collaborated towards the end of the nineteenth century in making Vienna a great focus of medical teaching. Although associated in the faculty with Skoda, Billroth, Kaposi, and Turek, Politzer's clinic formed one of the chief attractions to students from all parts of both hemispheres. More than 7000 English and American doctors have taken special courses with this famous teacher. He was able to address them in their native tongue, and thus his ideas and his methods of research and treatment were easily assimilated. The clinic formed a veritable

school for diseases of the ear, and the most prominent otologists on the continent—for example, Viktor Urbantschitch, Alexander Neumann, and the Nobel prize-man Bárány—apart from numerous aurists in the United Kingdom and in the States, owe to Politzer the chief part of their training. A native of German Hungary and of Jewish origin, Adam Politzer early showed signs of an enterprising and original mind, for on his appointment as teacher at the University of Vienna in 1861, at the early age of 26, he had previously published important papers on experimental physiology dealing with the innervation of the muscles of the inner ear and the pressure conditions of the labyrinth; he had already studied physiology with Helmholtz and with Claude-Bernard, acoustics with König in Paris, and pathology with Toynbee in London. "The paw of the lion became visible," said his old teacher, Oppolzer. Politzer's method of air inflation into the drum cavity was first published in 1863; politzerisation with a small "p" now appears in the dictionary. In 1870 Politzer was appointed to the chair of otology in Vienna, which he held for 37 years, and was acknowledged as the greatest teacher of his subject almost throughout that period. His collection of anatomical and pathological specimens now revert to his old clinic, whilst his library has been bequeathed to the University of Vienna. It is given to few medical men to develop a threefold claim to a place in the history of medicine. Professor Politzer himself built up, a new science, applied his own inventions and discoveries with the utmost technical skill, and did not scorn to spend many hours in each day for four decades in expounding, demonstrating, and teaching. He founded a great school of otology, and his name will never be forgotten.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE.

MEDICAL UNIT, in the Clinical Theatre of the London Hospital, E.

MONDAY, August 30th.—2 P.M., Mr. Goulden: Eye Conditions in General Diseases of the Central Nervous System.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, August 30th.—2 P.M., Dr. G. Stewart: Medical Out-patients. 2 P.M., Mr. D. Armour: Operations.

TUESDAY.—10 A.M., Mr. Steadman: Dental Department. 2 P.M., Dr. Burnford: Medical Out-patients.

WEDNESDAY.—2 P.M., Mr. Addison: Operations. 2 P.M., Mr. Gibb: Eye Department.

THURSDAY.—2 P.M., Mr. MacDonald: Surgical Out-patients. 2 P.M., Mr. Sinclair: Orthopaedic Department.

FRIDAY.—2 P.M., Mr. Banks Davis: Diseases of the Throat, Nose, and Ear. 2 P.M., Dr. Burnford: Medical Out-patients.

SATURDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 2 P.M., Dr. Owen: Medical Out-patients.

Daily.—10 A.M., Ward Visits. 2 P.M., In-patient, Out-patient Clinics and Operations.

MALE LOCK HOSPITAL, Dean-street, W.

MONDAY, August 30th, WEDNESDAY, AND FRIDAY.—5 P.M., Dr. C. Russ: Demonstration of the Treatment of Gonorrhoea by Electrolysis.

Births, Marriages, and Deaths.

MARRIAGES.

EARP—GOODLIFE.—On August 18th, at Mansfield-road Baptist Church, Nottingham, John Rosslyn Earp, M.A., M.R.C.S., L.R.C.P., to Kathleen May Goodlife.

WEBSTER—BENTLEY.—At St. John's Church, Old Trafford, Manchester, on the 14th August, 1920, by Rev. C. S. Jackson, Clement Arthur Webster, M.R.C.S., L.R.C.P., of 216, Upper Chorlton-road, Whalley Range, Manchester, to Doris Anne Marie, elder daughter of Ernest J. Bentley, Esq., of "Waltham," Wood-lane, Timperley.

DEATHS.

LEDINGHAM.—On July 22nd, on s.s. *Mogilot*, Christie William Ledingham, M.D., F.R.C.S. Buried at sea, Gulf of Suez.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Sir Shirley Murphy has been elected Master of the Society of the Apothecaries of London.

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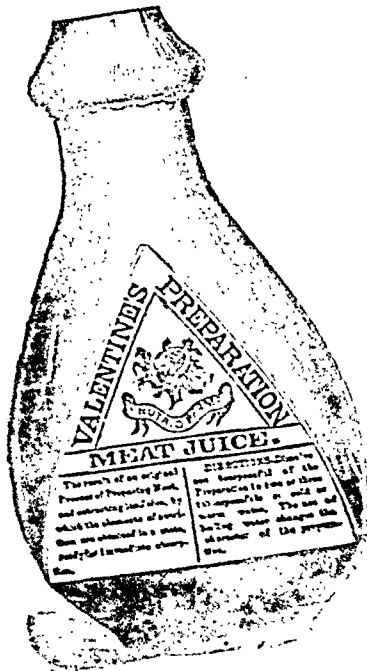
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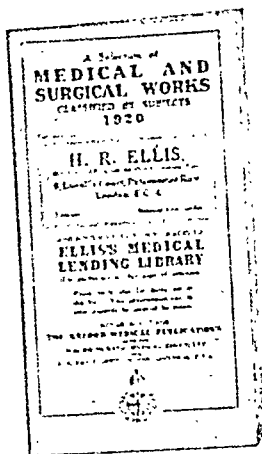
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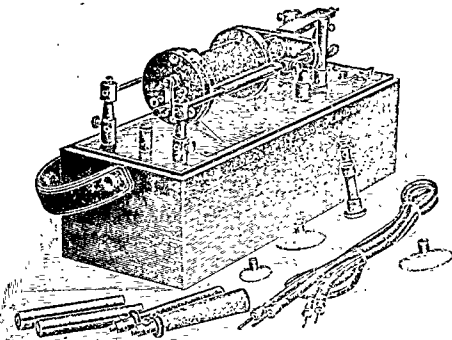
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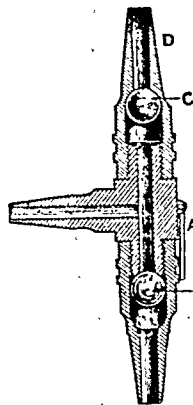
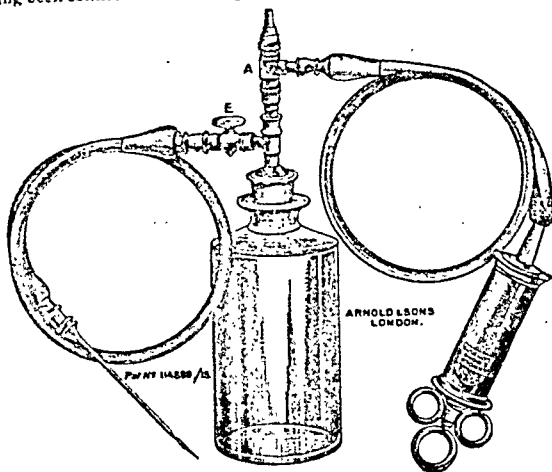
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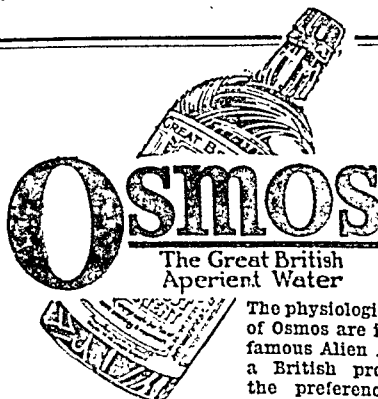
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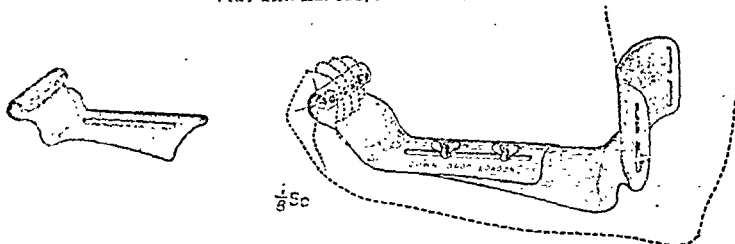
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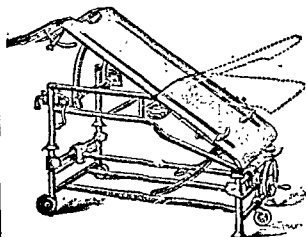
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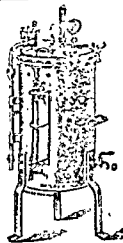
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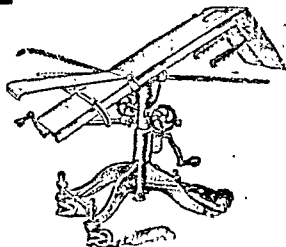
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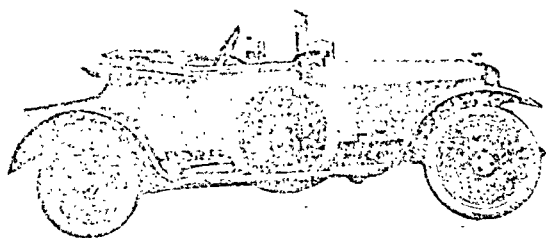


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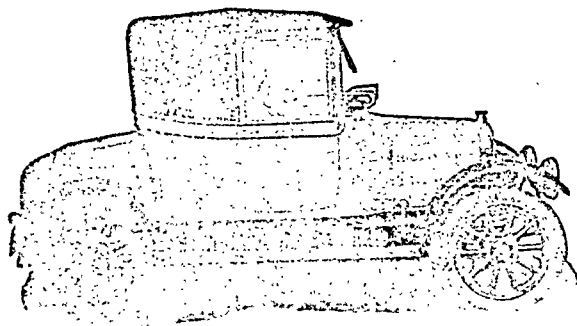
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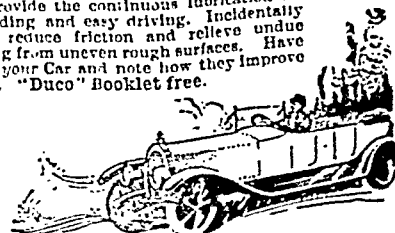
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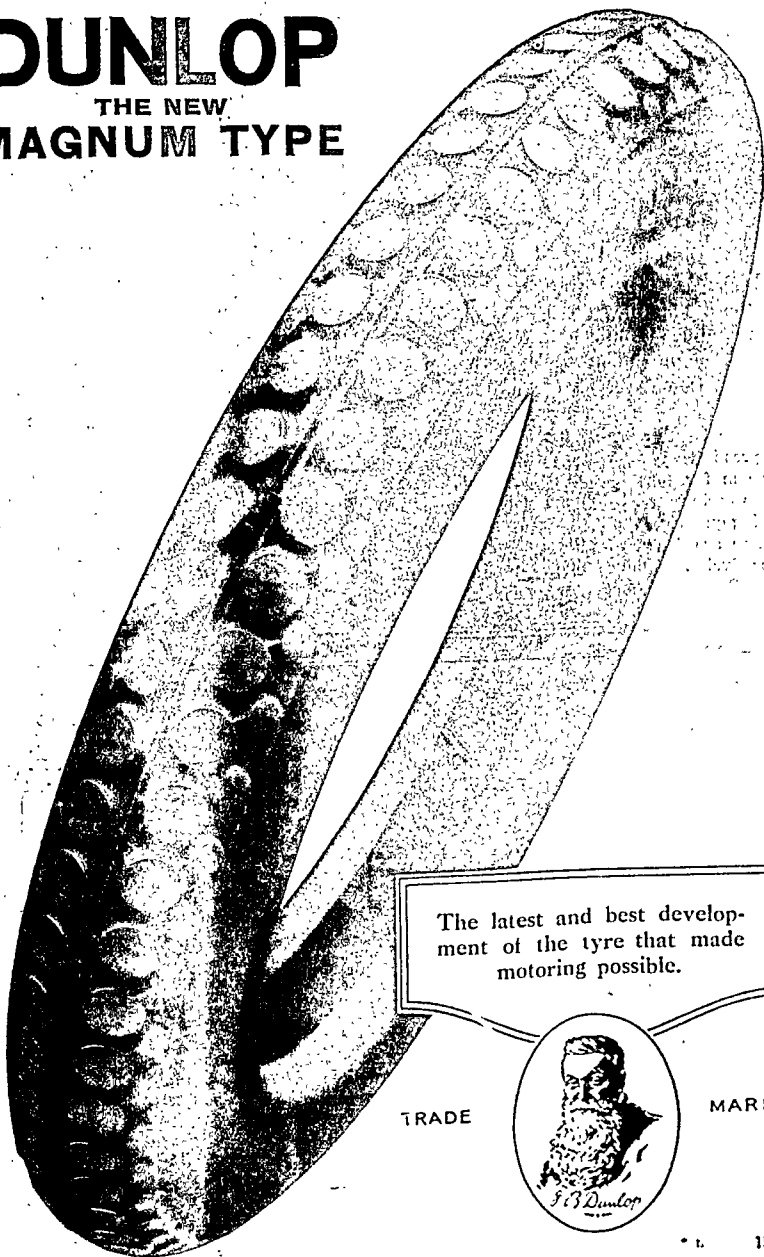
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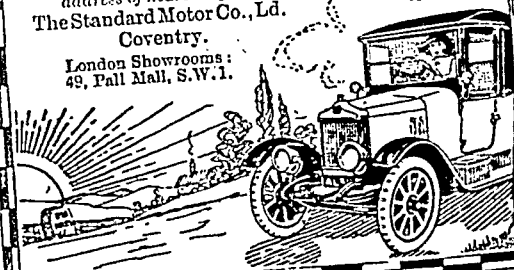
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from members of the Medical and Nursing Professions

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I may say that for many years I have had in my mind the production of a soap made in the main from Nature's vegetable material, and I now find your preparation quite exceeds my preconceived ideas.

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I wish every success to "Sapon" Soap and hope it will soon supplant many of the harmful chemical preparations on the market.

Yours sincerely,

M.B., & L.R.C.P., &c.

GENTLEMEN,—

A little while ago I sent for one of your free samples of soap to try on a patient who had a very greasy skin. In the meantime I got a baby who showed every sign of soreness. I tried the very best of powders and creams; last week I tried your soap and in two or three days baby was almost better, but we did not know whether it was the soap or the thick (pure) cream I was using until we went away for the day and had to use another soap. In the evening baby was very restless and red, and next morning the whole trouble had returned; it is now settling down again nicely through the use of your Russian Tar Soap. The mother is so delighted that she has ordered some from our local chemist who wanted her to try Coal Tar Soap, but she said none other than your Sapon Russian Tar Soap would do. The chemist has promised to stock this soap and I shall be delighted to buy the same for our own use. Our water here is very hard, and I have passed on your other sample to another lady.

I felt I ought to thank you for the samples, for I should have been very grieved to have left a sore baby, yet I thought I had tried everything. I showed the doctor and told him the benefit we had received from the use of your soap. The mother is going to try it for a maid who is suffering from Eczema.

Again thanking you,

I am, yours faithfully,

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Free lather in any water. No scum which irritates the skin. Stops irritation from insect-bites and heals open wounds.

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As a respiratory sedative and cough-allaying agent, it is most potent and trustworthy.

It affords unvarying results that can not be expected from extemporaneously prepared mixtures obtained through ordinary sources. It is the form in which the concerted influence of its several constituents on the respiratory system finds the most pronounced expression. It stimulates respiration, increases the fullness of inspiration and expiration, promotes the liquefaction of mucus, facilitates expectoration, and relieves pain.

It is particularly valuable in the treatment of cough, bronchitis, laryngitis, phthisis, pneumonia, whooping-cough, asthma, and inflammatory disorders of the respiratory tract.

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The adult dose of GLYKERON is one teaspoonful every two hours, or at longer intervals as the individual case requires. For children of ten years or more, the dose is from one-quarter to one-half teaspoonful; for children of three years or more, five to ten drops.

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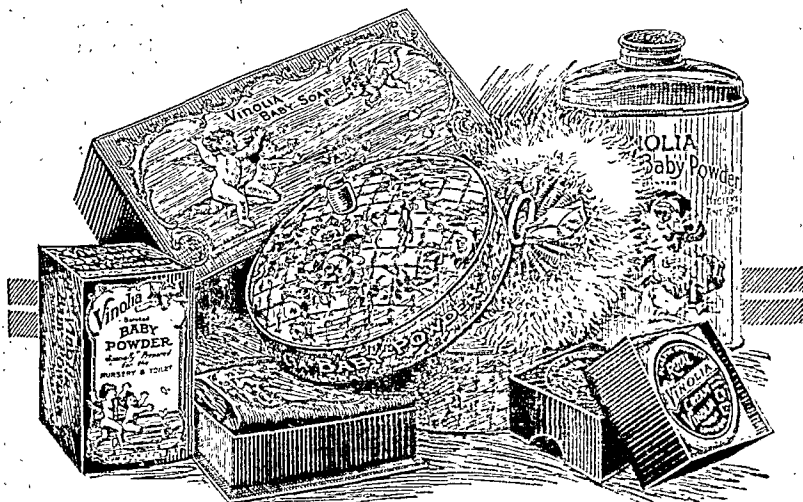
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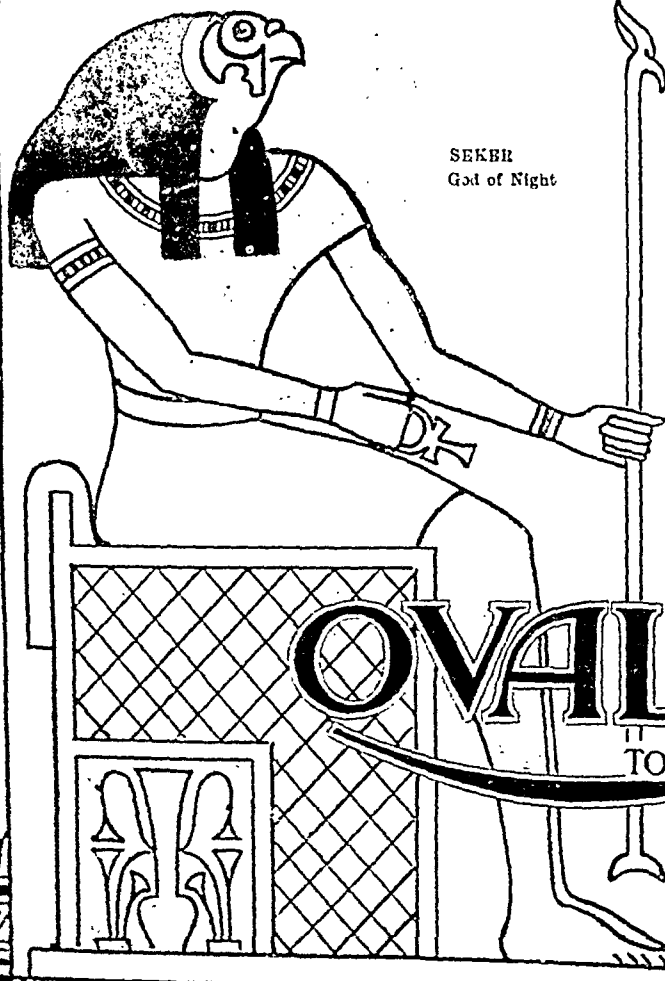
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A non-toxic and non-irritant colloidal silver germicide and antiseptic, for general use, by topical application, injection and internal administration. Indications: Septic and infective Wounds, Influenza, Tonsillitis, Haemorrhoids, Cystitis, Colitis, Gonorrhoea, Diarrhoea, Bacillary Dysentery, and affections of the Throat, Nose, Ear, and Eye.

Dose: 1 to 2 teaspoonfuls in water, twice daily, fasting.

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A colloidal suspension of Copper, for intramuscular injection. For use in cases of inoperable Carcinoma, &c.

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A colloidal suspension of Manganese for intramuscular injection, of proved value in septic conditions of the blood. Indications: Furunculosis, Acne, Seborrhoeic Eczema, Quinsy, and Gonorrhoea. (Vide *British Medical Journal*, April 20th, July 20th, August 17th, and October 5th, 1918.)

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Collosol Iron is of established efficacy in Anæmia and Chlorosis. Given orally, colloidal iron is rapidly diffused in the stomach, and a large proportion of it is readily absorbed by the amino-acids formed in the process of digestion, and so hæmoglobin is synthesised.

Dose: 1 teaspoonful well diluted with water after meals.

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A colloidal sulphur suspension for internal administration and for use as baths. In this form taken internally the sulphur is entirely absorbed and avoids intestinal irritation.

Dose: 1 to 3 teaspoonfuls with water, during or after meals.

COLLOSOL FERROMALT

A combination of Pure Malt Extract with Colloidal Iron, rich in protein, diastase, and vitamins—the essentials for perfect carbohydrate metabolism. In this colloidal suspension Iron does not cause constipation or digestive troubles.

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A colloidal suspension of Selenium, for intramuscular injection. For use in cases of inoperable Carcinoma, &c. (Vide *British Medical Journal*, Oct. 11th, 1919, p. 463.)

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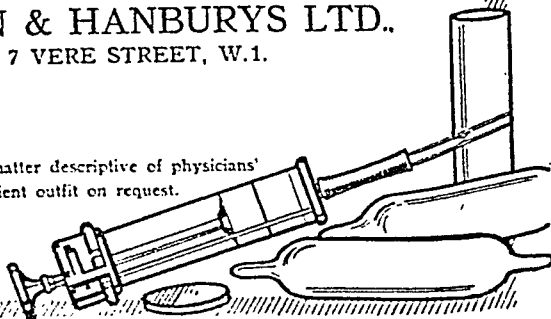
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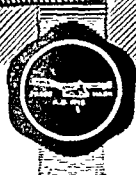
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BRONAMALT is a combination of the entire tonic and aromatic constituents of Cinchona, with a concentrated Liquid Extract of Malt of maximum diastasic efficiency. The Cinchona alkaloids being in the form of hydrobromates. BRONAMALT does not give rise to any symptoms of cinchonism even in persons acutely susceptible to quinine or cinchona in the ordinary forms.

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The Malt Extract not only overcomes the unpleasant bitterness of Cinchona, but actively assists the digestion of starchy food, and also constitutes a valuable nutrient, for delicate girls and young children, especially where there are indications of chest weakness.

BRONAMALT TAKEN WITH VIBRONA FORMS AN IDEAL COMBINATION.

A most valuable recuperative after Influenza or any debilitating illness, is a teaspoonful of BRONAMALT mixed with a tablespoonful of VIBRONA. The addition of BRONAMALT imparts nutrient and starch-digesting properties to VIBRONA and thus enhances its value, especially in cases where the assimilation of food is imperfect. It is a well-known fact that alcohol destroys the amylolytic action of Malt, and consequently Malt Wines are practically valueless as starch-digesting agents, the diastase of the Malt being rendered inert. When, however, VIBRONA and BRONAMALT are taken immediately after mixing, the digestive power of the Malt is unimpaired, and a most pleasant combination is obtained, the value of which, in cases of exhaustion or defective nutrition, can hardly be over-estimated.

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BRONAMALT possesses all the advantages of VIBRONA, the only difference being that a standardised Liquid Extract of Malt, in place of Wine, is employed as the vehicle for the Cinchona.

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BRONAMALT possesses the valuable property of preventing the troublesome constipation to which young children are frequently subject. This irregularity is generally due to imperfect assimilation of starchy food. By acting as a natural resolvent, BRONAMALT obviates this tendency, thus avoiding recourse to purgatives.

BRONAMALT IS MOST USEFUL TO NURSING MOTHERS.

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BRONAMALT GREATLY ASSISTS CONVALESCENCE AFTER ILLNESS.

In tedious cases of convalescence from severe illness, especially after whooping cough, bronchitis, and febrile diseases, BRONAMALT increases the general vitality, and quickly restores the natural appetite.

BEST METHOD OF TAKING BRONAMALT.

For children, one teaspoonful of BRONAMALT should be given immediately after meals, twice or three times daily, according to age. Adults should take two teaspoonfuls, either alone or with a tablespoonful of VIBRONA.

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A
Valuable
Galactagogue
Nutrient and
Digestive.

Always specify
'Kepler'
in writing

Contains the true malt diastatic ferment, is rich in maltose, phosphates and albuminoids, and is free from alcohol.

'KEPLER' Malt Extract is not only a concentrated food in itself, but is also an aid to the digestion of other foods.

One teaspoonful may be added to each bottle of milk for infants, or, for children and adults, two dessert-spoonfuls to each plate of farinaceous food.

Issued in bottles of two sizes

See also Wellcome's Medical Diary



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EARLIEST ARTISTS' MATERIALS: (B) PAINT-TUBES AND SPATULAS.—The paint-tubes here figured on the left, about two-thirds natural size, were found—one still containing ochre—among the debris left in a cave by the Magdalenian artist who had decorated it. They are made from the cannon-bones of reindeer and are ornamented with incised lines, some criss-cross, others parallel. Similar tubes made of hollow-bones and containing colour were found upon the body of a Bushman artist, killed in war with the Boers. The curved spatula of bone engraved with the figure of a salmon, and also reproduced, is one of a number of implements, the purpose of which, it is surmised, was to aid in applying colour. All hunting tribes, with the exception of the Eskimos—whose climate obliges them to keep the body covered—paint and tattoo themselves. It is argued from this that the most ancient hunters of all, the Palaeolithic tribes, observed this custom. It is suggested that the quadrangular double spatula of bone, two faces of which are figured on the right, may have been a tattooing instrument. It is beautifully decorated and was probably an object of high value. Red was the predominant colour used by Palaeolithic man; he used it profusely in his funeral rites, laying the body upon a bed of red ochre and spreading a layer above it. The colour of red ochre was mingled in his mind with superstitions of blood, perhaps it was mingled in his mind with present-day savages, of which blood was the object—as it is with present-day savages, who also use red ochre in their funeral ceremonies.

CULTURE PHASE: PALAEO-LITHIC
(Magdalenian division)

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HOEFFTCKE'S EXTENSION APPLIANCES.

Ambulatory Treatment of Fracture of the Limbs; Tuberculous and Arthritic Disease of Joints.

By C. A. HOEFFTCKE,
7, Harley Street, W.1.

(Continued from August 21st.)

To construct an appliance which takes the weight off the articulating surfaces and to produce extension in a joint has been the aim for many years of a great number of surgeons and surgical mechanics.

Those of Sayre, America, Thomas of Liverpool, Hessel of Germany are well known. With these appliances most of the weight of the body is transmitted to the pubic bone and the pressure of which when a certain amount of extension is applied soon becomes unbearable; in consequence the muscles contract to avoid this pressure and defeat the object—namely, "extension." All the above appliances were constructed with the object of preventing movement in the joint while the disease was active.

Hugh Owen Thomas, the inventor of the Thomas's splint, scoffed (in his own characteristic way) the idea of being able to extend the surfaces in a joint with any appliance. (See "Diseases of the Hip, Knee, and Ankle-joints with their Deformities," by Hugh Owen Thomas, 1878, page 280).

The "American"—or rather I should say the Sayre—method would have us believe in the possibility of motion without friction. This last theory, introduced by Dr. Pilcher, is based on the supposition that motion can occur without friction and pressure without force. It has been dubbed the "Hood" method. The name is sufficient comment when I recollect that even the "elect" have been led astray.

In direct opposition to Thomas's theory and the conservative treatment of preventing movements in tuberculous joints, the Hoefftcke's Ambulatory Extension Splint has been applied for the last 15 years in this country for diseases of the joints and fractures. Articles and reports of cases describing the excellent results obtained by their use have been published by leading surgeons almost every year in the best-known medical papers, such as the *Brit. Med. Jour.*, *THE LANCET*, the *Practitioner*, and in books written by Sir Arbuthnot Lane, Bart., Sir Watson Cheyne, &c., &c., and lately in Binnie's "Surgery."

Extract (see *THE LANCET*, May 29th, 1920):—
THE ADVANTAGES AFFORDED BY EXTENSION IN THE TREATMENT OF DISEASED JOINTS.

By Sir W. Arbuthnot Lane, Bart., M.S., F.R.O.S.,
Consulting Surgeon, Guy's Hospital, &c.

"Quite a number of years have elapsed since my views on the treatment of tuberculous, rheumatoid, and other conditions of joints by means of rest were first shaken and then altered by the observation of the results of the combination of movements and extension afforded by Mr. Hoefftcke's appliances. Up to that time I was imbued with the view, then accepted, that rest was a factor of vital importance in the treatment of diseased joints. I then learnt that if sufficient extension could be exerted to take pressure off the opposing articular surfaces of the affected joint movement was often most beneficial and often accompanied with little or no pain. This is an illustration of the law to which I have frequently called attention—namely, that everything that is universally accepted as true in surgery is invariably false. It is not possible to exert upon all diseased joints, such as those of the spine, enough strain to enable the application of this principle. Yet even in these joints it points the direction in which we should work.

Effect of the Apparatus on the Diseased Joint.

"The advantages afforded by the forcible separation of the diseased articular surfaces from one another, combined with free movement, are best shown by the use of a really efficient extension apparatus for the leg,

which does not interfere with the functioning of the diseased joint. This is effected by the apparatus which Mr. Hoefftcke has devised. Not only does it exert great strain upon the articulation, keeping the surfaces from impacting on one another, but it permits of free movement of the joints of the leg, while enabling the sufferer to lead an active life. It keeps the parts well supplied with blood, which flows more freely through the vessels of the affected joint, while the muscles are kept functioning normally.

"The method of cure is based on the same principle as that applied with so much success in the treatment of tuberculous disease of the lungs at the institutions at Frimley and elsewhere. Since I first grasped the great advantage afforded by this principle, best applied by the apparatus already referred to, I have employed it largely with much success. If a diseased joint is moved forcibly without being extended the articular surfaces are bruised or otherwise damaged, and acute inflammation follows only too frequently; whereas under the influence of extension the surfaces of the fixed or displaced joint can be moved freely on one another, so that such movement is followed by a minimum degree of rapidly subsiding inflammation. The apparatus, by means of which a considerable amount of extension is kept up upon the affected joint, is applied to the limb and the patient at once proceeds to lead an active life.

"The mode of treatment varies to some extent with the joint affected. In many hip conditions it is necessary to employ forcible movement and extension before the apparatus is put on, whereas in disease of the knee the apparatus is applied at once to the deformed limb, extension being exerted gradually subsequently. Any residual flexion of the knee that cannot be overcome by the use of the splint alone can be met by forcible straightening of the limb on the extension table.

"The knowledge of the usefulness of the combination of extension and movement has served me in good stead in recent years, and I have been able to restore the functions of many joints which would otherwise have been fixed, probably in a bad position, and materially interfering with the usefulness of the individual."

This principle applies to the same extent to the ambulatory treatment of fractures, as the usual blood-supply through walking with a broken limb allows more callus to form than with the recumbent treatment and consequent slowing of the blood-supply.

The combative power of the improved blood-supply shows itself to a remarkable degree in rheumatoid, osteo, &c., arthritic cases.

If hips or knees are affected, the rest of the body—for instance, the spine, shoulders, arms, hands, and neck—is kept rigid in order to immobilize the painful joints and to establish gravity, in consequence slowing of the blood-supply results in the whole body. Adhesions form and even bony deformities are produced in other joints, thereby limiting the movements of the body generally.

When extension is applied to hips or knees and these joints are enabled to move without pain, the muscles in other parts of the body, which formerly were held rigid, relax their tension. The increased blood-supply through exercise of these joints absorbs the adhesions and freer movements result. Most of the cases sent to me which were cured by my extension treatment, especially those of arthritic origin, had been treated before with vaccine, serum, radiant heat, baths, radium, Thomas's splints, &c., without any lasting results. This shows that through exercise of the joints with extension the consequent increased natural blood-supply is of infinitely more therapeutic value in fighting and curing the disease than any artificial blood improver.

See also Proceedings of the Royal Society of Medicine, vol. 11, No. 5, June, 1920; Pathological Dislocation of Knee Corrected by Means of Apparatus. Proceedings of the Royal Society of Medicine, vol. 11, No. 2, 1912: A Case of Rheumatoid Arthritis.

(To be continued October 16th.)

The Lumbian Lectures

ON THE

CLINICAL EXPERIENCES OF A PHYSICIAN
DURING THE CAMPAIGN IN FRANCE
AND FLANDERS, 1914-19.*Delivered before the Royal College of Physicians of London*BY SIR JOHN ROSE BRADFORD, K.C.M.G.,
C.B., M.D., F.R.S., F.R.C.P.

LECTURE I.

MR. PRESIDENT, FELLOWS OF THE COLLEGE, AND GENTLEMEN,—My first duty is to express to you, Mr. President, and to the College my sincere thanks for the honour conferred on me by the request to deliver these lectures to the College. In seeking for a subject suitable to the occasion it seemed that a short description of some of the clinical manifestations of disease such as I had the opportunity of observing whilst acting as a consulting physician to the British Expeditionary Force might be of interest. Such an account, however, as given now, must be very incomplete; and will, in fact, consist of little more than a record of some impressions, a survey of a more or less cursory character of the observation of very large numbers of cases of diseases of very different and varied nature. Further, it will deal more especially with disease from the standpoint of general medicine rather than with the special diseases directly related to the operations of war itself, such as trench fever and the effects of gas warfare.

VARIED OPPORTUNITIES FOR CLINICAL STUDY.

I propose, however, to discuss in one lecture some of the clinical phenomena seen as a result of gunshot wounds of the chest, the study of which revealed many interesting features. The field available for clinical study was enormous; the mere numbers concentrated in the larger hospital areas, where it was not unusual for some 20,000 or more beds to be occupied, alone afforded opportunities never, perhaps, available before. This mass of clinical material, thanks to the organisation of the Medical Services, the large number of skilled medical officers, and the equipment of the military hospitals, could be studied in a satisfactory manner, although naturally the exigencies of military service prevented in some instances the complete study of cases interesting only from the standpoint of medicine.

The field available for observation was not only large but also varied. In the earliest periods of the war the army consisted of a specially selected portion of the male population, inured to military service. Later, but still early in the war, the armies were formed of the finest specimens of the youth of this country, who, after undergoing a prolonged training, came out to France in magnificent health and in full vigour of body and mind. Later the periods of training were necessarily shortened, the age of the men increased, the standards somewhat relaxed, and towards the end of the war a certain proportion of the men were considerably younger and the standard of physique lower. These differences, however, were not those that made the opportunity of the physician so unique; this arose rather from the variety of race represented in the forces. From an early period of the war we had large numbers of soldiers from the Dominions—Canadians, Australians, New Zealanders—and a very short clinical experience often showed that these men reacted to disease in a manner different from that seen with our own home troops. Further, the Indian troops and those from the West Indies also afforded much food for thought, not so much from the point of view of the introduction of diseases more or less peculiar to or prevalent in these races, but rather from the point of view of the extraordinary differences in their reaction to the diseases prevalent in France

and Flanders and affecting Europeans and those of European descent.

Thus the material available for clinical study provided by the actual fighting men was extraordinarily large and varied, but the field was really much greater than this, because in the latter stages of the conflict large numbers of men were enlisted for labour companies, and an army of women was also enrolled, in addition to the large number of women who had been engaged in nursing from the earliest stages of the war. When all these organisations were in full working order, as they were during the latter half of the war, the population that fed the hospitals was comparable to that of civil life, but with the very important qualification that it was still a selected population, both as regards age and as regards physique. The physician had the opportunity of studying the incidence of disease in a population where all diseases were, so to say, "notified," and not, as in civil life, where only certain diseases are so notified. This fact alone should provide ultimately much material of value for the study of disease, but naturally this subject is much too large to be dealt with here, and can only be adequately considered in the medical history of the war. Further, the experience of one individual, large as it was, is necessarily far too limited to deal with such an enormous and varied mass of material.

Although disease in war has usually claimed more victims than direct enemy action, and although military operations have often been hampered by the outbreak of disease, and especially of epidemic disease, yet the Great War was the only one in recent times where the military authorities made any special provision for physicians to accompany the armies in the field. Although from time to time in the past certain army medical officers in the field devoted themselves more especially to the problems connected with the sick, nevertheless the rôle of the doctor in the field was held to be that of an officer dealing especially with battle casualties. This is very natural when one considers the urgent nature of the medical, the military, and the humanitarian problem that presents itself during an engagement, whether it be part of an advance and attack, or the still more difficult question of dealing with the wounded when the military operations demand a retirement. The problem the military surgeon has to solve to the best of his ability is an urgent one, brooking no delay; the need is obvious and patent to all, even to those most ignorant of medicine. Failure to deal successfully with the wounded, either from the professional or the administrative side, is so obvious to all that it is not surprising that this side of the army medical officer's work has loomed large in the eye of the army, the medical profession, and the public, and it is right that it should do so, as it is work of the greatest importance from all points of view—military, professional, and humanitarian.

The rôle of the physician is different, but none the less also of value, both from the professional and military points of view. It is often said that his main function is the prevention of disease, although some would place prevention under the sole control of the sanitarian (who may or may not be a physician), and would seem to be under the impression that surgery and sanitation to be under the impression that the problems likely to be met with by an army during military operations. Great as are the services rendered by the sanitarian, especially with an army in the field, the physician is still required, inasmuch as the prevention of the spread of disease requires not only the recognition or diagnosis of fully declared and typical instances of disease, but also the recognition of anomalous forms of common diseases. This is often a matter of some difficulty and one requiring considerable clinical experience and acumen and one of peculiar importance in military medicine, where the prevention of epidemic disease may well depend on the recognition of initial cases, perhaps anomalous in their clinical manifestations. With this aid all the resources of the sanitarian can be brought to bear on the problem at once and early. The surgeon, the sanitarian, the bacteriologist, and the physician are all required in order to

deal adequately with medical problems on active service, and, further, they must work together and in harmony; no one of them can take on and perform satisfactorily the duties of the other; still less can any one of them deal with the whole problem. This was recognised only to some extent in the Army Medical Service prior to the war, encouragement was given to medical officers to specialise as surgeons, sanitarians, or bacteriologists, but it took several years of war for the real value of clinical medicine, as a subject of considerable importance for the maintenance of the efficiency of the fighting machine, to be recognised. Then steps were taken to place officers with special qualifications for the work in positions where their work could be effective.

The Surgical and the Medical Side.

The work of the army surgeon and of the army physician is in many respects very similar, and has the same general objects in view. Thus there is the humanitarian side, which concerns itself with attempting to provide the best possible treatment to the wounded and to the sick. Then there is the military side, which is more especially the problem of "wastage" and the best methods to adopt to check wastage and to bring the sick or wounded man back to duty as soon as possible. This question is of the first importance, both on the surgical and on the medical side, but it is a much bigger and more difficult question on the medical side, and it is here that the physician is of most value to the efficiency of the military machine. Surgery in the late war has done much to check undue wastage owing to the improvements effected in the treatment of wounds and the shortened stay of the wounded in hospital. This work was especially valuable inasmuch as wounded men, apart from their wounds, were in robust health, and thus provided the wound was soundly treated, could return to duty in a comparatively short time, especially in the case of the more slightly wounded. On the medical side the control of wastage was more difficult for several reasons. In the first place, the numbers dealt with were far larger, although this war, at any rate so far as concerns the campaign in France and Flanders, has been remarkable for the relatively small amount of disease, still the actual numbers of sick have been far larger than the number of wounded. Further, it must be remembered that the casualties from gas warfare were treated by physicians, although for statistical and other reasons they were included amongst the battle casualties and regarded as wounded.

Wastage.

These cases afforded many problems in connexion with the question of wastage, problems by no means simple in nature and requiring for their solution all the skill and experience of trained medical observers. Thus it may be said that not only was the number of cases very large on the medical side, but also that the question whether a man was fit to return to duty was very often a difficult one requiring much clinical experience for its solution. Wastage, however, arises quite apart from battle casualties, whether from wounds or the effects of gas warfare, or from nervous disorders, and in fact in all wars, including the late war, the main wastage is dependent upon disease and often on disease that might at first sight be thought of little interest or importance. Here the work of the physician is of especial value, as an extraordinary amount of wastage may ensue as a result of erroneous or incomplete diagnosis; disease of the skin and functional disorders of the heart afford illustrations of such conditions. Wastage on a very large scale may ensue as the result of the spread of epidemic disease. In some instances as, for example, in the outbreaks of true influenza in 1918, our present available methods of dealing with such problems only yield a very moderate measure of success. In other cases, such as the formidable diseases, cerebro-spinal fever and dysentery, much greater success is achieved, but in all cases success is largely dependent upon the recognition of early cases. The records of medicine, civil and military, old and recent, contain numberless instances of epidemics of disease where

the initial cases were diagnosed erroneously. On the other hand, they also record instances where an acute clinical observer has recognised a malady in an unusual form, and prompt measures have led to the suppression of the threatened outbreak. In an army such questions are of the very first importance; much harm may result from initial cases of dysentery being regarded as diarrhoea, or of cerebro-spinal fever being thought to be that protean disorder, influenza. These are questions of clinical medicine, although for their complete solution the services of the bacteriologist are required. Much harm, however, may be done by placing undue emphasis on one or other of these two branches of knowledge, especially in an army in the field. Thus some would take the view that no diagnosis of dysentery is justified unless there is bacteriological proof of the presence in the excreta of the causative organism. This is, of course, the correct attitude to take in a contribution to the study of the disease, but it is not the correct view to take when dealing with a supposed outbreak of the disease in an army in the field. There the opinion of the clinician, formed summarily at the bedside and based on symptoms, should be sufficient for the case to be regarded and treated as dysentery, at any rate temporarily, pending further and more complete study. Doubtless, errors will be made, and some cases not dysenteric in nature will be regarded as such, but much less harm will be done than by refusing to regard a case as dysenteric until the organism has been isolated. Much dysentery, especially in armies, will always be regarded as mere diarrhoea, but all cases with blood and slime in the motions should unhesitatingly be labelled dysentery on clinical grounds alone. Epidemics of dysentery in armies are prone to develop considerably before being adequately and firmly treated, owing to the tendency to regard the early cases as mere diarrhoea, for a variety of reasons. Much may be done to minimise this danger if care is taken to segregate, whenever possible, cases of diarrhoea.

The control of wastage from dysentery is mainly a question of diagnosis and sanitation, but here, as in the cases of enteric fever and cerebro-spinal fever, there is also the vexed and very difficult question of "carriers"; and the frequency of relapse as a result of a return to normal food still further complicates the problem of wastage in the case of dysentery. All these questions demand for their solution much clinical experience, but a great deal can be done to check this wastage by accurate clinical diagnosis.

I propose, Sir, after these general introductory remarks, to pass on to the consideration of certain experiences that are not without interest. In one lecture, the third, I propose to deal with some of the clinical phenomena seen as a result of gunshot wounds of the chest; in my second lecture I hope to discuss certain diseases, such as nephritis and polyneuritis, from the clinical side; and, to-day, to deal more generally with certain impressions formed as a result of the survey of the clinical field as a whole and from the standpoint of general medicine rather than from that of the special pathological states induced as a direct result of active service.

ORGANIC HEART DISEASE.

In the first place, it may be said that, speaking broadly, the medical examinations made in this country prior to the men being sent overseas were successful in detecting gross organic disease, even in its many latent forms. This is shown by the fact that it was exceptional to meet with patients suffering from obvious organic diseases, such as diseases of the heart, although, as might be expected, a few cases of aortic regurgitation that had escaped detection were seen from time to time, and amongst the large numbers of cases of paroxysmal tachycardia that came under observation a few cases of mitral stenosis and some with auricular fibrillation were met with. One such case of auricular fibrillation was of considerable clinical interest, in that it illustrated a rare type with a group of symptoms only occasionally

seen, and these very liable to lead to difficulties in diagnosis owing to the stimulation of an acute abdominal condition. The attacks of paroxysmal tachycardia seen in cases of auricular fibrillation may not only sometimes be very sudden in their onset, but may also be ushered in with severe abdominal pain instead of more precordial discomfort. This abdominal pain may be epigastric in position and accompanied with some local tenderness, together with some nausea and vomiting. The patient may be apparently very ill, with considerable collapse and much anxiety. In such a case an error of diagnosis may easily be made, if attention is concentrated on the abdominal pain and vomiting. The characteristic irregularity of the pulse may not be correctly interpreted, and the case may be regarded as an abdominal one and a perforation of the stomach or intestine diagnosed, the pulse being attributed to the effects of collapse, whereas in reality it is characteristic of the cardiac lesion present. I have seen two such cases—one, the case alluded to above, and one in civil practice prior to the war. In both laparotomy was performed under the mistaken diagnosis of perforation owing to the marked character of the abdominal symptoms and the apparent alarming condition of the patient; although in reality auricular fibrillation in association with mitral stenosis was the sole lesion present. In both cases the patient recovered. Mitral stenosis is not the only chest condition in which this error may be made; somewhat similar epigastric pain, together with collapse and some vomiting, closely simulating an acute abdominal lesion, may be seen, as is well known, in certain cases of angina pectoris, and also, strange as it may seem, in cases of sudden and extensive pulmonary embolism. In the latter instance the presence of urgent dyspnoea and of some degree of cyanosis should, however, be sufficient to prevent such an error of diagnosis.

RARITY OF CASES OF ACUTE RHEUMATISM.

Valvular disease of the heart was then an uncommon lesion, and this leads naturally to the consideration of one of the most interesting features of the medicine of the war—i.e., the rarity of the occurrence of acute rheumatism. Very few cases of this malady were seen, although such as did occur were of the classical type, and not uncommonly accompanied with pericarditis with effusion. When we consider that we were dealing with a population of an age suitable for this malady, and what the conditions were as regards exposure to cold, damp, and wet, to say nothing of fatigue, it is certainly noteworthy that the disease was an exceptional in its incidence as it proved to be. This fact would tend to support the views of those who hold that this disease is not specially associated with exposure to wet and damp. Further, it would seem that this experience in the recent war is similar to that recorded for the British Army in the Crimean campaign, where, notwithstanding the rigours of the climate, pericarditis of rheumatic origin was uncommon. The experience as to the incidence of acute rheumatism in this war is more especially interesting owing to the fact that this malady was equally uncommon amongst the large numbers of women employed by the army, although they also were of an age favourable to its occurrence. The very different incidence of acute rheumatism in the military hospitals in France from that familiar to us in civil hospitals in London was therefore very striking.

One case of acute rheumatism in a young nurse merits notice owing to the anomalous mode of onset and unusual clinical course of the malady. A nurse whilst on duty and not obviously ill, was seized with symptoms of precordial discomfort and slight faintness, and was found on examination to have slight pyrexia, the temperature being a little over 99° F. and a very slow pulse, both the pulse-rate and that of the heart being only 30 per minute. She was confined to bed, and the brachycardia and slight pyrexia persisted without the development of any other signs or symptoms beyond a faint systolic apical murmur that was not always audible. The pulse-rate gradually returned to the normal rate, and at the end of a week the temperature rose to between 101° and 102° F. and effusion occurred into the joints, the ankles, wrists, knees, and elbows, together with much pain, and the illness then followed the normal course of an attack of acute rheumatism, and the systolic

apical murmur that had been heard occasionally and with difficulty in the earlier stages became now quite marked and obvious. The pulse increased considerably in rate, and the cardiac features of the case became much more pronounced in that there were considerable palpitation and tachycardia and the heart became enlarged, although there was never any evidence of pericarditis. On two separate occasions attacks of very severe tachycardia occurred, accompanied with extreme irregularity of the rhythm, and the pulse could not be counted owing to its frequency. These attacks were very severe and lasted several hours, and on one occasion the patient was in a critical condition for several hours. Recovery took place very slowly, and the patient was confined to bed for several months. Ultimately she recovered sufficiently to return to this country and some two years after the illness she was in good health, vigorous and able to return to work, presenting no abnormal physical signs except a faint apical systolic murmur with no signs of appreciable cardiac enlargement.

This patient would seem to have been an instance of one of those rare cases where the rheumatic virus affected primarily the myocardium, causing first brachycardia and subsequently extreme tachycardia probably due to auricular fibrillation, but certainly due to pathological changes in the auricular muscle. During the whole of my service in France no case of death from acute rheumatism came under my notice, nor did I see any case of rheumatic hyperpyrexia.

INFECTIVE ENDOCARDITIS.

A certain number of cases of infective or malignant endocarditis were, however, seen, although there were no reasons on clinical grounds for associating them with acute rheumatism; these cases presented both clinically and on post-mortem examination some features of interest. In view of the enormous number of septic wounds, especially during the first years of the war, it might have been expected on a priori grounds that infective endocarditis would have been of very frequent occurrence. The physician was not uncommonly asked to see cases where this complication of an infected wound was suspected to be present, owing to the presence of persistent and irregular pyrexia and the absence of any obvious cause for this in the state of the wound itself. It was, however, rare for signs to be present sufficient to justify such a diagnosis inasmuch as these cases usually presented only an irregular temperature and possibly a systolic murmur, signs, it is true, of a septic infection, but not characteristic of or limited to infective endocarditis. Post-mortem examination of large numbers of such cases showed the rarity of acute infective endocarditis as an early complication of infected wounds. Careful observation by a number of surgeons showed, on the other hand, that many of these cases were really of a different nature and dependent upon the wound infection causing thrombosis of, or even the presence of purulent clots in, the great veins of a limb, stump, or other part.

Whilst acute infective endocarditis was only rarely seen as a complication of septic gunshot wounds, quite a number of cases were seen where it arose primarily and in unwounded men. It is rather remarkable that in most of these cases the infection was a primary one, attacking healthy valves, and not superimposed on old valvular lesions. Some cases of the latter and more common variety in civil practice were, of course, seen, both clinically and in the post-mortem room; but the point I wish to draw attention to is that an appreciable number of cases of primary acute infective endocarditis of the well-known type occurred in unwounded men with cardiac valves showing no signs of previous disease and where the source of the infection was not discovered. No septic focus was found in such cases, and they were not the sequel of pneumonia. Further, so far as my experience went, such cases were more frequent than cases following as a result of a septic wound, and they not uncommonly ran an acute and rapid course clinically.

CEREBRO-SPINAL FEVER.

Cerebro-spinal fever is a malady of great clinical interest and of considerable military importance, and it is a disease that presents several problems still awaiting solution. The earliest cases in the British

Expeditionary Force were seen in the late autumn of 1914, and it may be of some interest that in the very first batch of cases seen there were some that presented anomalous features, not only in their initial symptoms and mode of onset, but also in their clinical course and in the nature of the cerebro-spinal fluid.

Anomalous Cases.

Anomalous cases presenting similar features were seen from time to time throughout the campaign in association with other cases presenting the more classical and well-known symptoms of the disease, and it is to a certain group of such cases that I desire to direct your attention. This group of cases presented a distinct and fairly uniform picture of a malady with a sudden onset, with fever, headache, and vomiting, together with pains in the limbs of varying severity.

The patient rapidly passed into a condition of apparently considerable gravity with partial unconsciousness, or in the less severe cases into a stuporose condition with imperfect realization of his surroundings. In all cases there was quite definite and marked retraction of the head, and the pulse-rate was usually slow. These cases always resembled closely cases of undoubted cerebro-spinal fever of a moderately severe type, and the more severe forms with a very sudden onset were practically indistinguishable clinically from cases of cerebro-spinal fever. One point that always made a positive diagnosis of cerebro-spinal fever a little doubtful in such cases was that Kernig's sign was not usually of the absolutely definite character—that is, associated with cerebro-spinal fever. In other words, the fixity or the rigidity of the knee was of a more plastic character and not of the locking character associated with cerebro-spinal fever. Nevertheless, the physical signs, including Kernig's sign, the initial symptoms, and the severe illness were all often so closely similar to those of true cerebro-spinal fever, that an accurate diagnosis was impossible in many cases without lumbar puncture. Lumbar puncture in these cases always yielded the same result. There was a considerable increase in the amount of cerebro-spinal fluid obtainable on puncture, and the fluid was under great pressure, but the fluid not only showed no abnormal cell elements, and no organisms were obtained on culture, but it was always extraordinarily clear and limpid in character. The quantity obtained was always large and sometimes very large, as much as 100 c.cm. being withdrawn at a single operation. The lumbar puncture was followed by rapid improvement and subsidence of the symptoms, and in most cases convalescence ensued rapidly and immediately. In some few instances the lumbar puncture had to be repeated, but this was quite exceptional, and in all the cases seen—some 20 in all—recovery was complete and usually rapid, no case being fatal. In a few cases, and notably in one that occurred in a medical officer, there was, in addition, a painful rash. This rash was present in the trunk, arms, and thighs, and consisted of small raised red papules tender on pressure; the tenderness on pressure was such as to cause considerable discomfort to the patient.

These cases formed a very definite clinical group, and their true nature is very obscure; it is difficult to determine whether they should be regarded as a variety of cerebro-spinal fever, or as mere so-called meningisms associated with a variety of diseases, or as an independent affection. The uniformity of the clinical phenomena and of the course of the affection, together with the absence of any evidence of the presence of other diseases in the patients, makes it very improbable that the cases were of the nature of meningismus complicating some other disease. The workers on cerebro-spinal fever in this country have described cases where no organisms were found in the cerebro-spinal fluid and where this fluid was clear; but whether these cases were of the same type as those just described is not quite certain, although it is probable. Our cases were characterised by an extraordinary limpidity of the fluid, together with a notable excess in quantity and sometimes, as mentioned above, a very great excess. Further, in the cases described in England the meningococcus, although not found in the cerebro-spinal fluid, was found in nasal swabs; but this was not the case in a series of these cases examined in France, as the meningococcus was not found in throat and nasal swabs in a single case of this type. The fact that these cases occurred at the same time as other typical cases of cerebro-spinal fever is, of course, a strong argument for linking them together. The clinical point I wish to emphasise is

that these anomalous cases were often of a quite severe type with marked, and in some cases with urgent, symptoms, and that they were not by any means cases presenting only slight and equivocal signs or symptoms of cerebro-spinal fever; nevertheless, they were never fatal. Every clinician is familiar, especially during an epidemic of cerebro-spinal fever, with cases where the symptoms are suggestive of the presence of the disease, although they are not of a severe type, and where the results of puncture are negative and the patient rapidly recovers. The cases I have attempted to describe are not of this type, since they are often of a severe character, and during the first 24 or 48 hours of illness almost indistinguishable from cases of severe cerebro-spinal fever. I fear I am only able to give this short description of them and am not able to state positively their nature, although they seem to form a definite clinical group.

Difficulties in Diagnosis.

Cerebro-spinal fever sometimes presents peculiar and remarkable symptoms at its onset, and thus renders early diagnosis difficult. One of the most frequent of these anomalous types of onset is that in which dyspnoea is the leading symptom, and where other symptoms, such as headache and fever, although present, do not attract attention as they are comparatively slight; whereas the dyspnoea may be very marked and urgent. In some instances the dyspnoea is of sudden or, at any rate, of rapid origin and may be severe enough to cause the patient to sit up in bed. It is apt to be accompanied with some restlessness and probably some mental dullness and confusion. If due importance be not given to the presence of slight pyrexia such cases are very apt to be diagnosed as uræmic or even, as I have seen, as diabetic in origin, owing to the presence in the urine either of albumin or of some reducing substance. Several cases of cerebro-spinal fever of a very severe type and rapidly fatal have fallen under my observation where uræmia had been diagnosed on account of the severity of dyspnoea and the presence of mental dullness or stupor. In some cases the rash of the disease had been regarded as confirmation of the existence of uræmia. In all these cases the error was dependent upon the presence of albuminuria being regarded as proof of the existence of serious renal disease. In these cases with marked dyspnoea the dyspnoea is always very urgent and not infrequently it is a very early symptom. Such cases, so far as my experience goes, are very severe and usually rapidly fatal. There is no real difficulty in the diagnosis, as a complete examination of the patient reveals physical signs characteristic of the disease and lumbar puncture at once yields positive evidence. Cerebro-spinal fever may not only be confounded with uræmia, but it may also be confused with nephritis. The former mistake is merely an error in diagnosis and in the interpretation of certain signs and symptoms; but the confusion with nephritis is a more difficult problem, as it would seem that certain cases of cerebro-spinal fever may not only develop nephritis as a complication, but that in other cases for a certain period nephritis may be the only manifestation of the disease. Several instances of the association of nephritis with cerebro-spinal fever were seen, and in some the onset and cause of the illness was very remarkable. In the first place, nephritis may occur as a complication in ordinary cases of cerebro-spinal fever of moderate severity and running a normal course with the usual signs declared and obvious meningitis. In such cases nephritis is also of the familiar type with or without anasarca. In 1915 I saw two such cases in adjoining beds with the late Dr. Carter, of Birmingham; in both the cerebro-spinal fever was of a severe type, and in the second week of illness the nephritis developed and was accompanied with very considerable anasarca. In such cases, however, both the meningitis and the nephritis are quite typical, and it is only that one occurs as a complication of the other. It is not this type of case that leads to error of diagnosis, but another type which is of greater clinical interest, and where the

initial manifestations of illness take the form of nephritis. The meningeal symptoms are at first absent, and only develop after the lapse of a week, ten days, or possibly even longer.

In these cases the onset of the disease is subacute, with headache, general pains, but not of great severity, possibly some initial vomiting and slight pyrexia. There is no sign of severe illness and no signs or symptoms suggestive of the presence of meningitis. The urine contains an appreciable, or it may be a considerable, quantity of albumin, together with epithelial and granular casts. Thus the diagnosis of nephritis is made and the patient's condition attributed solely to this. I have not seen anasarca in any such case, although it certainly may occur in the nephritis that develops as a complication in declared cases of cerebro-spinal fever. The patient with the supposed simple nephritis is not apparently very ill, but is apt to be very quiet and apathetic, and the headache and slight pyrexia persist. The headache becomes more intense, and then, after a variable period, sometimes a few days, in others longer, and in one case after three weeks, symptoms such as very intense headache, stiffness of the neck and possibly of the limbs become much more marked and reveal the true nature of the disease, and this is confirmed at once by lumbar puncture. Although the meningeal symptoms develop and increase, the nephritis does not, the renal lesion would seem to be always of very moderate intensity, and certainly not rapidly progressive. Several instances of this "nephritic" variety of cerebro-spinal fever came under my notice, and some were fatal, including one in a nurse.

Two other anomalous modes of onset in cerebro-spinal fever may be described shortly, although they are both rare.

In one the onset of the disease was very sudden with severe and repeated diarrhoea, accompanied with some abdominal pain and headache, not of a severe character. The diarrhoea was profuse, and its sudden onset, with the fact that there were no other marked symptoms, led to the suspicion of some food poisoning being its cause. The diarrhoea lasted some 12 hours, and the next day the patient, a medical officer who had been in contact with cases of cerebro-spinal fever, expressed himself as having recovered from the attack; but he looked ill and had some headache and considerable albuminuria; the diarrhoea, however, had ceased, and only very slight pyrexia, the temperature being just over 99° F., was present. No signs of cerebro-spinal fever were observed although looked for, as the disease was rather prevalent at the time. During the next two or three days no symptoms developed beyond the fact that in the afternoon the headache became more marked and the temperature rose to 100°, and the patient began to complain of aching and stiffness in his limbs; these symptoms were absent in the morning. On the sixth day of illness the headache became more intense and lumbar puncture revealed the true nature of the disease, and the case was fatal at the end of another week.

A Remarkable Case.

The most remarkable case from the clinical standpoint of this disease seen by me was one where an officer had a febrile illness of some five weeks' duration with absolutely no signs of any kind beyond the presence of the pyrexia.

The fever was very high, reaching 105° F. on several occasions, and there was always a large daily oscillation so that the chart greatly resembled some septic infection. He had very few symptoms and for a considerable time did not apparently suffer from the pyrexia. I often saw him sitting up in bed reading, writing, &c. All the usual examinations, including repeated blood cultures, yielded negative results, and during all these weeks of fever no diagnosis was made. After some five weeks of pyrexia of this septic type he suddenly developed rigidity of the neck, accompanied with severe headache and vomiting, and lumbar puncture revealed the presence of meningitis, and the organism was recovered and successfully grown. After a very prolonged recovery and necessitating several lumbar punctures he ultimately recovered completely and served in the Air Force at the front. I have seen him recently, when he was in vigorous health and actively engaged in work.

In bringing to your notice these anomalous forms of cerebro-spinal fever I have purposely excluded the considerable number of cases where failure to recognise the malady depended only on the mere recognition of meningitis with such well-known diseases as fusion of meningitis with such well-known diseases as rheumatism or influenza—in other words, mere errors of diagnosis made when confronted with the ordinary forms of meningitis, and when the apparent slightness of the symptoms failed to warn the observer that they

were really dependent upon such a serious cause as cerebro-spinal fever.

Etiological Significance of Anomalous Cases.

The study of these anomalous cases is of some interest in relation to the problem of the etiology of the disease, and would seem to confirm the idea that the danger of direct infection from cases of the malady itself to others is not really very great. The anomalous cases I have described were necessarily not recognised in their early stages in many instances, and during this period they were often in general wards with no special precautions; yet the disease did not spread to others, even when, as in some cases, their stay in such wards was prolonged to several weeks. Thus, in some of the cases with an onset simulating nephritis a patient might be in a general ward for as long as two or three weeks, yet I am not aware of the disease having spread to others in any such case. This is in harmony with the rarity of the infection spreading from declared cases to others in close contact with the sick—e.g., medical officers and nurses. Although the direct spread of infection from the anomalous cases was not observed, nevertheless it is possible that such cases may lead to the development of the disease indirectly in the same way as the more usual types of the malady, and therefore their prompt recognition and isolation is equally important in all circumstances and more especially perhaps in military medicine.

TUBERCULOSIS.

The existence of large hospital camps afforded an opportunity for obtaining some statistics as to the incidence of tuberculous lesions both active and quiescent, owing to the performance of post-mortem examinations in the thorough and complete manner that is customary as a routine in civil hospitals, and it was possible for this to be done in these hospital camps, thanks to the centralisation of such work under the superintendence of a specially appointed medical officer with experience as a pathologist. The full and complete results of this work will doubtless be published later, and I only wish now to allude to certain facts of interest. I am indebted to the courtesy of Dr. T. H. G. Shore, who was the officer in charge of the morbid anatomy in the Etaples area, for some statistics that are of interest. Clinical observation in the hospitals showed that tuberculosis was not a very common ailment, but the large number of men dying from wounds after severe fighting, gave an opportunity probably never before obtainable, of getting reliable information as to the frequency of the presence of tuberculous lesions in the apparently healthy. The detailed study of the autopsy statistics of the war and especially those from large hospital centres where the morbid anatomy work was organised, will give valuable information on this and on other questions, but such studies are necessarily at present incomplete. The statistics I am now going to put before you are merely those of the incidence of tuberculous lesions as proved by post-mortem examination, in cases of death from all causes, including therefore deaths from wounds, accident, disease, and disease includes cases of death from tuberculosis. In other words, it records the incidence of tuberculous lesions as determined by post-mortem examination in the British Expeditionary Force. These observations were carried out during the later years of the war—i.e., in 1917 and 1918—that is to say, at a time when the personnel of the armies was perhaps not quite of the same standard as in 1914 with the old Regular army, or in 1915 with the original Territorial army and the original so-called Kitchener armies. Nevertheless, the army population of 1917 and 1918 was still a selected population, both as regards age and physique, and was not comparable to the mixed population from which a London hospital derives its patients.

Statistics of Tuberculous Lesions Post Mortem.

The total number of post-mortems performed was 2121, and in 256 cases a tuberculous lesion of some kind was present—that is to say, in 12 per cent. of the cases. In the present—62 cases are included where death was the direct result of the tuberculosis; in other words, there were 62

of fatal tuberculous disease amongst the 2121 post-mortem examinations made in deaths from all causes. Although the total incidence of tuberculous lesions was some 12 per cent. of the total post-mortem examinations made, tuberculous lesions were present in men dying from wounds or from some acute disease other than tuberculosis in about 9 per cent. of the total number of cases examined post-mortem. Dr. Shore has analysed these figures to some extent, and his results show that the actual incidence of tuberculosis is much the same in the British, Canadian, and Australian Forces. In these three separate forces the incidence varies only between 11.4 per cent. and 11.8 per cent. In the New Zealanders the incidence was much higher—i.e., 17.8 per cent.—but the number of cases examined was small—i.e., only 56 post-mortem examinations were made in New Zealanders, with 10 cases where tuberculous lesions were present, so that it would be unwise to draw any definite conclusion from so limited a number. In a series of 1513 post-mortem examinations yielding 145 cases with tuberculous lesions the situation of the lesion was as follows:—Pulmonary, 113; glandular, 74; military, 14; peritoneal, 14; renal, 20. Expressed in percentages: Pulmonary, 76.7 per cent.; glandular, 50.7 per cent.; military, 9.6 per cent.; peritoneal, 9.6 per cent.; renal, 13.7 per cent. If these are expressed as percentages of the total number of post-mortem examinations in the series the following are the results:—Pulmonary, 7.5 per cent.; glandular, 4.9 per cent.; military, 0.9 per cent.; peritoneal, 0.9 per cent.; and renal, 1.3 per cent. In the series of 1513 post-mortems there were, as mentioned above, 113 cases in which the tuberculous lesion was pulmonary. If these pulmonary cases are further analysed the following results are obtained:—In 27 cases (i.e., 23.9 per cent.) the lesion was active; in 21 cases (i.e., 18.6 per cent.) the lesion was chronic; and in 65 cases (i.e., 57.5 per cent.) the lesion was quiescent. In the 74 cases of glandular tuberculosis it is perhaps worth recording that 34 were thoracic, 32 abdominal, and in 8 cases both sets of glands were involved.

These statistics not only give results as to the incidence of tuberculous lesions in the army, but they may perhaps also be used, doubtless with many qualifications, to throw light on more abstruse questions, as, for instance, the different degrees of resistance of different races to the virus of tubercle. Dr. Shore has classified the results according to race; thus a small number of post-mortem examinations were made on natives of South Africa, of the West Indies, and of New Zealand Maoris. The numbers are small, but the incidence of tuberculosis was high; but although this is of interest, the most striking fact was that in all cases where tuberculous lesions were present the patient had died from tuberculosis, and no instance of either a chronic or a quiescent lesion was found on post-mortem examination of these native races. Further, in the white races the death-rate from tuberculosis presented considerable differences.

Thus although the percentage incidence of tuberculous lesions in the British Canadians and Australians was much the same, varying, as stated above, from 11.4 per cent. to 11.8 per cent., the death-rates in these different forces were very different. In the British, in a series of 1650 post-mortem examinations, there were 188 presenting tuberculous lesions, and in 51 these were the cause of death—i.e., the death-rate was 16.5 per cent. of those affected. In the Canadians the corresponding figures were: post-mortems 220, tuberculous lesions 26, deaths from tuberculosis 7, a percentage, therefore, of 25.9. In the Australians: post-mortems 93, tuberculous lesions 11, deaths 5—i.e., a percentage of 45.4. The figures for the New Zealanders are very small: post-mortems 56, tuberculous lesions 10, and deaths 8—i.e., a percentage of 80.

Thus the resistance of the men in the British Forces would seem to have been the greatest, and that of the natives of South Africa, West Indies, and Maoris the lowest, and that of the men coming from the Dominions intermediate between these two extremes. It would seem, however, that they also presented differences amongst themselves—e.g., the Canadians and the Australians.

DISEASES OF THE BLOOD.

A few cases of pernicious anemia were seen, but the number was very small; on the other hand, an appreciable number of cases of leukemia occurred, and there are certain points of interest with reference to these cases. Thus only one case of the more common form of the disease—i.e., chronic spleno-medullary leukemia—was seen; all the others were instances of acute leukemia of more or less sudden onset and rapidly fatal

after an illness of only a few weeks, and often of only two or three weeks.

These cases were of a very uniform type, characterised by moderate fever, great weakness and prostration, often sudden and always of rapid development, with an intense and very characteristic pallor, and generally some purpura. In some cases the occurrence of purpura was the first sign to attract attention, but more usually it was found on examination in a patient who reported sick owing to rapid prostration and loss of strength. The purpura was usually moderate in degree, but not infrequently it was of the type of purpura hemorrhagica, and hæmaturia, sometimes profuse, and epistaxis were the most common forms. Hemorrhage from the bowel also occurred. The purpuric eruption in the skin was of the usual type, but I was struck with the frequency of the presence of purpuric spots in the face, a phenomenon that is usually regarded as very exceptional. Purpuric hemorrhages in the gums and in the tongue were also not uncommon, and some of the cases suffered from the very great diminution in the number of the polymorphonuclear cells and the enormous increase in the number of large transitional lymphocytes with a large nucleus. I saw no case of acute leukemia where the increase and number of white cells was due to an increase affecting only or mainly the small lymphocytes. The glandular enlargement was usually moderate and never extreme, and clinically the spleen was either not enlarged or only to a moderate degree. On post-mortem examination the thymus was in all cases persistent and enlarged.

It is of interest that so far as my experience went acute leukemia, and especially that form of it characterised by purpura, was seen much more frequently than the ordinary forms of leukemia.

An Obscure and Rare Disease.

In relation to this blood disease mention may be made here of an obscure and rare disease that was seen in two and possibly in three instances.

This malady was characterised by a febrile illness, somewhat resembling in its gradual onset and clinical course enteric fever. This similarity was shown not only by the gradual onset and the character of the temperature chart, but also by the occurrence of the onset and in the first few days of illness of some diarrhoea. The pyrexia was considerable, reaching 103° F. in its daily oscillations. The pyrexia lasted several weeks, during which the spleen slowly and gradually increased in size, and in at least two cases not only reached the middle line of the abdomen but passed well beyond it. The splenic enlargement was quite comparable to that seen in ordinary cases of spleno-medullary leukemia. The patient presented no marked symptoms beyond those due to the pyrexia and a moderate degree of anemia. Blood examination revealed a diminution in the number of red cells, and a considerable leucopenia, the number of red cells, and a considerable examination of the white count failing to detect any organisms of the enteric group, and the Widal reaction was also uniformly negative.

The cases presented considerable resemblances to those of splenic anemia, pyrexia, great splenic enlargement, anemia, and leucopenia, but this diagnosis can scarcely be correct, since after an illness of many weeks the pyrexia declined and the spleen slowly returned to its normal size. One such case was not only watched throughout the illness, but it was ascertained that he was quite well one year after leaving hospital. The nature of these cases is obscure, as it would seem that enteric fever, splenic anemia, and certain tropical affections could all be excluded, and the cases were seen in young soldiers who had only served in France.

SALARIES OF SCHOOL MEDICAL OFFICERS.—At the last meeting of the Devon Education Committee it was decided to appoint a subcommittee to consider the question of the salaries of the medical staff. The Devon Education Committee some time ago decided to give their medical officers £410 per annum, but owing to resignations they have had to give a locum tenens 10 guineas a week, or £520 a year. The chairman said that they could not get medical officers for £400 per annum, and another member remarked that the salaries would have to be increased. Eventually the subcommittee was appointed, and it appears that the Education Committee will in the future have to pay the usual salaries given to school medical officers.

HOSPITAL TREATMENT OF THE PSYCHOSES AND PSYCHONEUROSES.

SUGGESTIONS FOR BRINGING THEM WITHIN THE SCOPE OF A GENERAL SCHEME.

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The following suggestions are concerned particularly with patients other than in the metropolis who are either of the usual hospital class or not able to pay more than from two to five guineas a week, most of them only able to pay such fees for about six months. Under the designation "psychoses" would be comprised the various varieties of mental disorder, mainly in an early phase. The psychoneuroses would be illustrated by the borderland states, with mixed mental and "nervous" manifestations; psychasthenia or neurasthenia, with obsessions or imperative ideas; morbid doubts and fears; tics, with psychical perversion; psychoses associated with disorders such as Graves's disease or chorea; mixed nervous and psychical disorders after mental or physical shock; psychoses associated with minor epilepsy. All these conditions are accompanied by physical reduction, more or less in degree. Those interested in neurology (with which these suggestions are not concerned) may consider that its claims to be dealt with under a general scheme require to be pressed.

The medical requirements of cases of the psychoses and psychoneuroses have never been adequately met in this country. The time would seem opportune, I would fain say propitious, for insistence and persistence on their behalf. Greatly daring I shall scarcely be if I maintain that these patients constitute the most neglected section of the sick community. How could they be comprised in such a scheme as has been sketched in the Interim Report of the Consultative Council on Medical and Allied Services? In view of the stepmotherly treatment which has been meted out to patients suffering from these maladies hitherto, those whose practice lies amongst them have, no doubt, perused the Report, and especially with a view to ascertaining whether their claims to benefit under the projected scheme have been adequately dealt with. On consulting the Report it will be seen that the only reference made to mental disease is under "Supplementary Services" (pars. 14 and 74). Amongst these services come "hospitals for curable or incurable mental disease." So that the patients now referred to would merely be provided for in a supplementary fashion, together with, for instance, cases of tuberculosis, of infectious disease, and of epilepsy suitable for colony care. Incurable mental disease could be adequately provided for thus, but not curable. The psychoses and psychoneuroses together constitute a vast and oppressive liability, which, I maintain, cannot be discharged through the medium of a mere supplementary service. They were long since shunted out to the sidings of the main traffic of disease, where they have remained, mainly stationary. They, with their medical and nursing services, have long suffered, and still suffer, all the evils of segregation. What is now suggested amounts to a perpetuation of these evils in a milder form. Being at present outside medical society, it is proposed to admit them to its fringe. I would claim, with the full blatancy of the most truculent of trade-union leaders, "full recognition" for them; full provision, alike in primary, secondary, and teaching centres. I affirm that no adequate reason against their inclusion in any way worthy to be set against their crying needs can be adduced.

Application of the Three-centre Scheme.

One may conceive cases of the psychoses and psychoneuroses as occurring in a certain area, and provision being made for them under the general scheme of the Interim Report as follows (existing buildings, modified

or enlarged, to be used for the present; the psychiatric clinic would require to be a new building):—

(a) In a rural district, where the most modest requirements of an indoor clinic or hospital are scarcely available and the needs of patients would have to be met under the next heading.

(b) In a small town able to furnish a building worthy to rank as a hospital (primary centre). Here there would be comparatively modest equipment for diagnosis, clinical laboratory work, and medical and surgical treatment.

(c) In a large town containing a hospital in an adequate sense, with visiting medical staff, some with training in special directions; a resident medical officer or two; some of the nurses specially trained in various directions, with one or two capable of conducting, with some tuition, a class of Swedish exercises; with massouses; with laboratory facilities of a fairly extensive kind and technical apparatus; with out-patient department—in fact, a hospital equipped with everything entitling it to rank as a secondary centre.

(d) In the town wherein is situated a medical school, with its associated hospital, research and laboratory workers, teaching facilities, and consultants; the teaching or tertiary centre, to wit; the *ne plus ultra* when the lacking clinic in psychiatry, complete internally, with its out-patient department in association with other like departments of the hospital, shall have been established.

Those who have experience, be they general practitioners or specialists, of the difficulty and inappropriateness of dealing with—I will not say treating—these patients in their homes will fully appreciate how much the application of the three-centre scheme will mean to them. In my judgment, the first desideratum is to get them away from home surroundings and from relatives. Is there any class of invalid to whom this applies with equal force? Solve this difficulty by providing for these cases on the three-centre system, and their treatment is at once placed on a sound footing, and the haunting fear of the alternative to home—the asylum—will fade, treatment will commence in reasonable time, and less will be heard of the need for extending asylums. In making such provision, regard must be had to special requirements. Whether cases of the psychoses and psychoneuroses are received under (b), (c), or (d) of the above scheme, they will require facilities under the following headings:—

A room or ward so arranged, supervised, and administered, that means of self-injury are reduced to a minimum; one or more single rooms for isolation; a nurse or nurses, trained in mental disorders (preferably with general training also; the combination is more and more to be found); one or more massouses, according to requirements; facilities for open-air rest in bed, for regular weighing; douches, open baths, available for prolonged warm-bath treatment—under (d) baths maintaining a constant level and temperature; a garden for exercise and occupation; facilities for indoor occupation, especially handicrafts—under (d) suitable shops, sewing-room and gymnasium, and other facilities for treatment under this special heading, which need not be specified here.

As regards diagnosis and medical advice, the principal and second medical officers of the nearest public mental hospital should be available for consultation, as also the director, or one of the staff, of the nearest psychiatric clinic. I would suggest that the domain of the psychoses and psychoneuroses is quite peculiarly one in which the general practitioner finds himself, and will continue to find himself, in need of expert advice, and that he will not commonly take the sole responsibility of deciding how the patient should be disposed of. I think a special case can be made out for an arrangement under the general scheme, with the agreement of the controlling authorities of the mental hospitals and psychiatric clinics, whereby a reasonable fee is payable to the staff of these institutions for this consultative work out of local or State funds, in cases where the patient has no means. In suitable cases, and where distance allows, the patient can be sent to his doctor to the out-patient department of the nearest psychiatric clinic, or of the nearest mental hospital, should such department exist at the latter, and advice as to his disposal be thus obtained. However obtained, expert advice could decide whether the patient should be dealt with in hospital under (b), (c), or (d); whether—exceptionally—by reason of the gravity of his symptoms, notwithstanding their recent origin, or of insufficient accommodation being their recent origin, he should go to a mental hospital, available under (b), to be treated under (c), his own doctor should look after him, whenever possible, expert advice being available. Under (c) the patient will be under the care of a member of the visiting staff. Expert advice in this case will, for a time, only be available from the mental hospital and psychiatric clinic, the senior staff being placed

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LOBAR PNEUMONIA.

A CLINICAL ANALYSIS OF 558 CONSECUTIVE CASES.

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THAT one observer should have been privileged to see within two and a half years no fewer than 558 cases of lobar pneumonia is, I venture to think, sufficiently confirmatory of the view that medical officers during the past war were afforded exceptional opportunities to practise medicine upon an intensive scale. I have selected for consideration a disease which is particularly suitable for statistical investigation. Lobar pneumonia presents features which make a correct diagnosis a matter of practical certainty; it occurs sufficiently frequently to provide a conveniently large number of figures from which to draw conclusions; and as regards incidence no special peculiarities of military life can be said to vitiate comparisons with its occurrence in civil practice. From the personal standpoint it is a matter of some importance that every case was seen from the first day (and generally from the first hour) of its arrival in hospital, and that the progress throughout its termination was systematically investigated. For these reasons errors of observation became reduced to the lowest possible limits—the errors of observation of one clinician; whilst the circumstance that the treatment of every case was actually ordered or personally supervised by the same person removes any implication as to individual skill, and so affords an indication as to the dependence of mortality upon details which relate solely to the patients themselves.

I have excluded a few cases which occurred in the Aldershot Command which were probably cases of lobar pneumonia but about which some doubt in the diagnosis remained to the end, and no case is comprised in my series which could not according to accepted criteria be legitimately included. The investigation terminated suddenly in October, 1917, on my transference from the Aldershot Command when urgently mobilised for service overseas; and on my return to the Command for the rest of my military service the superintention of the influenza epidemic, with its anomalous pulmonary complications, rendered it impossible to differentiate unequivocal cases of true lobar pneumonia.

It must be admitted with regret that all the advantages afforded by this unique opportunity were not realised. Attention was from the outset particularly directed to clinical features. Much might have been done, however, to trace the connexion between incidence and climatic peculiarities, seeing that a selected body of men living under identical conditions was under consideration. Undoubtedly, had adequate meteorological observations been utilised many interesting facts would have emerged. But in the earlier months of the investigation such possibilities were not appreciated. Furthermore, statistical inquiries during the war were not only discouraged but rigidly forbidden. It was, in fact, only recently that I was enabled to procure the necessary information as to the number of troops actually serving month by month in the Command during the period comprised. To have proceeded further in an endeavour to elicit certain details relating to individual units would at that time have demanded opportunities which for many reasons were not forthcoming. The exigencies of military service regarded a home hospital as mainly a *pié-à-terre* or distributing centre for medical officers proceeding overseas; the minimum of skilled assistance was therefore available, so that elaborate investigations of the patient's family history, past life, and other personal details were necessarily neglected. For the same reason pathological work was at this time reduced to the lowest possible minimum, and the frequent changes in personnel precluded any systematic research.

For these reasons, then, my contribution is almost entirely clinical; nevertheless, I think the investigation of so large a number in so comparatively short a time may not be without interest and perhaps value, more especially when it is emphasised that conclusions are based upon cases drawn from a relatively selected population as regards age and physique, all living under practically identical conditions.

Incidence.

Table I. illustrates the incidence of cases month by month and at the same time comprises the distribution according to age. The average strength in the Command is also exhibited in order that the proportion of cases to total population can be scrutinised. The table also shows the mortality according to incidence, and briefly analyses the death-rate throughout the series according to the age of the patients.

A contemplation of this table leads to some rather bewildering and at first sight inexplicable results. In the first place, it will be seen that there is no evidence of a regular seasonal incidence. It is difficult to explain the large number of cases encountered in May, 1915, a preponderance which is not apparent in the corresponding month in 1916 and 1917. Contrast also April, 1916,

TABLE I.—Incidence and Mortality according to Age and Season.

	Under 20.	20-30.	30-40.	40-50.	Above 50.	Total cases.	Monthly strength of Aldershot Command.	Deaths.
1915								
April	8	4	8	—	—	20	131,670	4
May	11	32	4	—	—	51	131,423	5
June	12	22	14	—	—	48	134,641	4
July	6	11	7	1	—	25	121,106	2
Aug.	7	5	4	2	—	18	97,617	2
Sept.	6	5	7	4	—	22	92,877	3
Oct.	—	6	10	2	—	18	121,531	1
Nov.	11	17	5	5	—	38	122,203	4
Dec.	6	—	2	—	—	21	123,727	1
1916								
Jan.	—	—	—	—	—	21	122,332	0
Feb.	—	11	11	1	—	24	117,733	4
March	9	7	2	—	—	18	102,477	1
April	2	4	2	2	—	10	102,791	0
May	1	3	3	1	1	9	101,168	2
June	4	1	4	2	—	11	115,843	2
July	10	12	3	—	—	25	116,812	3
Aug.	4	9	—	—	—	13	120,217	0
Sept.	1	4	4	1	—	9	111,965	1
Oct.	1	4	1	1	—	9	119,430	3
Nov.	1	7	9	2	1	21	122,981	6
Dec.	5	—	—	—	—	—	—	—
1917								
Jan.	2	3	5	1	—	11	122,971	0
Feb.	4	11	10	7	—	25	127,137	6
March	6	5	7	1	—	19	90,342	2
April	9	6	4	3	—	22	101,722	2
May	3	4	5	3	—	15	111,523	1
June	4	1	1	—	—	6	114,224	1
July	1	5	1	2	—	9	109,418	0
Aug.	4	—	1	1	—	5	105,396	1
Sept.	1	—	2	—	—	4	107,217	0
Total	148	213	146	49	2	538	—	61
Deaths	9 (6.1%)	21 (9.9%)	22 (15.1%)	9 (18.4%)	2 (100%)	61 (100%)	—	—

with April, 1917, and, as an even more striking example, November, 1915, and November, 1916. One might have suspected as a possible explanation of the fluctuating numbers corresponding variations in the total number of troops present in the Command, but the figures which I have recently obtained show that such variations do not run *pari passu* with the incidence of the disease. The incidence must have depended upon a large number of different circumstances—possibly climatic conditions, temperature, prevailing winds, and so on, with which I am unable to deal. Above all, I am convinced that this must have depended largely upon the incidence of the troops stationed in the Command, physique of the troops enormously according to military exigencies. Had it been possible to take an exhaustive survey of the troops, particularly as regards

their category, I feel no doubt a definite relation between susceptibility and constitution would have been definable.

It is easy to explain the curiously high incidence in August, 1916, when no fewer than 25 cases occurred. During this month a Canadian contingent was transferred direct from Canada to the Command, and the change of climate appeared to have been badly resisted, for of the 25 cases 18 were Canadians. (The cases were typically croupous pneumonia, and there was no question of an influenzal element.)

My conclusion as regards physique is supported by a consideration of the length of service of men affected. Of course, the army during the recent war consisted for the most part of men who had seen no previous service, so that by April, 1915—when my investigations at Aldershot were begun—a huge majority of men in the Command possessed less than eight months' service, and throughout the war recent recruits dominated the strength of the Command. Nevertheless, these observations extended to September, 1917, by which time the war had been over three years in progress, yet the striking fact is obtained that of the total cases seen no fewer than 62 (i.e., 11 per cent.) fell sick with the disease *within 12 days of joining up*; 119 cases (21.3 per cent.) in less than one month from enlistment; 227 (50 per cent.) in less than six months; whilst, finally, no fewer than 523 cases (93.7 per cent.) had had less than 12 months' service. I suggest that the change to military conditions—exposure, overcrowding, and other factors inseparable from army life—naturally determined this susceptibility of the more feeble.

Detailed descriptions of general physique are not forthcoming, and I can only give a general impression in stating that over and over again I was greatly struck by the wretched development of the recruits who came in sick.

It will be observed that only two men over 50 are included in the series—one would naturally encounter few men of this age—and that both succumbed. The service of one man was 13 months; of the other 15 months. The total mortality (10.9 per cent.) compares favourably with the mortality encountered in cases of pneumonia occurring in the general population, which in 1065 cases collected in 1884 by an Investigation Committee¹ amounted to 1 in 5.5—i.e., 18.2 per cent.

Of 673 cases which occurred in the Middlesex Hospital between 1880 and 1889 116 died—i.e., 17 per cent., and annual variations between 12 and 24 per cent. were encountered. One would naturally expect a lower mortality in such a series of cases as the one now presented, for the men were to a certain extent selected, and, speaking generally, excluded the aged, debilitated, and alcoholic, and eliminated all the principal adventitious causes which contribute to fatality. My percentage of fatal cases constitutes an intermediate between the average population and a body of men scrupulously selected for their physique. Osler² quotes statistics of picked men in the German Army, where among 40,000 cases a mortality of only 3.6 per cent. occurred. (In the same place he gives the record of 654 cases occurring in 16 years at the Johns Hopkins Hospital with a mortality of 200 (30.4 per cent.))

Initial Symptoms.

In interrogating patients upon their arrival in hospital regarding the onset of their illness leading questions were at first as far as possible avoided and direct suggestions were subsequently put with reference to certain of the commonest symptoms. The following table of symptoms (Table II.) gives their numerical frequency and percentage of total cases.

Table II. calls for little comment. Pain in the side generally, but not invariably, restricted to the side high signs of consolidation subsequently appeared. Each one would naturally expect to be of fairly frequent occurrence. In my series six suffered from unilocular meningitis, and in a further 25 cases a symptom was of such severity that a provisional diagnosis of cerebro-spinal fever was made and lumbar puncture performed.

A complaint of difficulty in breathing was very infrequent; bronchitis, as will be seen, was advanced as a definite initial symptom in 40 cases, and these, for the most part, were subjects who were chronic sufferers from chest trouble. In 13 cases the only complaint was of sore throat. Of the 9 patients who complained of

TABLE II.

Symptom complained of—	No. of cases.	Per cent. of total cases.	Symptom complained of—	No. of cases.	Per cent. of total cases.
Shivering ...	381	69.0	Pain in abdomen	31	5.5
Pain in side ...	345	60.0	Tonsillitis ...	13	2.3
Headache ...	195	35.6	Dyspnoea ...	11	2.0
Vomiting ...	181	33.0	Pain in legs ...	11	2.0
Cough ...	152	24.0	Hæmoptysis ...	9	1.6
Pains all over ...	130	9.0	Diarrhoea and vomiting ...	3	0.5
General malaise	42	7.6			
Bronchitis ...	40	7.0			

hæmoptysis one was a case of trauma to the chest wall; and, bearing in mind the type of condition subsequently seen in the influenza epidemic, it is not altogether unlikely that three were of influenzal origin.

In 7 cases pain in the abdomen was so severe that they were sent in with the diagnosis of acute appendicitis. Three actually underwent operation for this condition, the appendix being found free from disease; and 3 others reached the theatre and underwent preparation for operation. In all these "abdominal" cases unequivocal signs of lobar pneumonia appeared in due course. From these figures it would appear that the simulation of acute appendicitis is not so common as is sometimes suggested.

Condition on Admission.

It is the usual practice in the army to transfer to hospital with the least possible delay all men who report sick with pyrexia, save of the most trivial character. In certain units provision is conveniently made for the isolation of the sick for observation, and, as is well known, a certain type of man regards it as *infra dig.* to report sick until he is in a state of complete prostration. With these few exceptions, however, the large majority of my series were admitted to hospital a short time after the onset of the illness. The accompanying table (Table III.) illustrates the condition on admission as regards the degree of pyrexia on their arrival in the ward.

TABLE III.

Temp. on admission.	No. of cases.	Per cent. of whole.	Temp. on admission.	No. of cases.	Per cent. of whole.
Below 98°	15	2.7	102°-103°	155	27.7
100°	59	7.0	103°-104°	131	23.4
100°-101°	31	6.0	Above 104°	84	15.0
101°-102°	115	20.5			

The cases who exhibited a temperature below 98° were in a state of collapse, and with the rare exceptions of those who never rallied showed pyrexia of over 101° within six hours of admission. It will be observed that over 70 per cent. cases on admission showed a temperature between 101° and 104° and over 50 per cent. between 102° and 104°. A temperature higher than 105° was very infrequent, in three of my cases only.

Pulse-respiration ratio.—This is usually held to be typically about 3:1 in cases of lobar pneumonia. In my series, although variations were very frequent, in 80 per cent. of cases the pulse-respiration ratio was between 3:1 and 4.5:1. These figures are substantially lower than those given by Osler (2:1; 1.5:1) which I observed in about 12 per cent. cases only.

Knee-jerks.—A special investigation of this feature was made since it has been mentioned that loss of tendon jerks is a usual feature in lobar pneumonia and that the phenomenon affords a valuable method of differentiation from an acute abdominal condition. The knee-jerks were abolished in 138 cases (24.7 per cent.). They were feebly present in 69 cases (12.4 per cent.). They were present to a degree which might be described as normal in 218 cases (44.4 per cent.) and

they were definitely exaggerated in 103 cases (18·5 per cent.). I believe that the original observation (which I have been unable to trace) was conducted at a time when it was not customary to employ the now familiar "knee-jerk hammer," without which a considerable number of sluggish and even normal knee-jerks would be overlooked and so contribute to an apparently large number of cases of abolition of the knee-jerk. If the test is properly performed it would not appear that any diagnostic value can be said to be attached thereto.

Signs in the Chest.

The figures in Table IV. refer to the time of appearance of the earliest definite signs of consolidation, not suggestive features such as crepitations or slightly prolonged expiration. It will be seen that in nearly 80 per cent. cases signs appeared within four days of onset of

TABLE IV.—Time of Appearance of Signs of Consolidation.

Day of appearance.	No. of cases.	Percent.	Day of appearance.	No. of cases.	Percent.
Day of illness—			Day of illness—		
First ...	12	2·15	Sixth ...	32	5·7
Second ...	152	27·2	Seventh ...	24	4·3
Third ...	161	29·0	Eighth ...	1	—
Fourth ...	115	20·0	Ninth ...	—	—
Fifth ...	49	8·8	Ten ...	—	—
			Signs completely absent	12	2·15

the illness. Although in 12 cases no signs of consolidation could be detected throughout the course of the illness these cases were from other features unmistakably cases of true lobar pneumonia.

Distribution of Areas of Consolidation.

It is, I think, generally agreed that the right lung is affected more frequently than the left. Osler gives in 100 post mortems: R. lung, 51 per cent.; L. lung, 32 per cent; both lungs, 17 per cent. These figures are a close approximation to mine (Table V.), which, it

TABLE V.

Area.	Cases.	Per cent.	Area.	Cases.	Per cent.
Right lower lobe	191	34·2	Left apex ...	8	1·4
Right apex ...	64	11·5	Both lungs ...	115	20·6
Left lower lobe	168	30·0	Signs absent	12	2·2

must be observed, however, correspond to clinical observations, not to more exact post-mortem findings. It is, further, universally maintained that the lesion of "double pneumonia" is more serious than when one lung only is affected. This is certainly supported by my series, for in 115 cases of double pneumonia 83 deaths occurred—viz., 28·7 per cent.—as compared with a mortality of 10·9 per cent. when all cases are considered.

Sputum.

Table VI. gives the day of appearance of typical rusty sputum. It will be observed that, as in the case of the time of appearance of physical signs, the second, third, and fourth days predominate. In quite a con-

TABLE VI.

Day of appearance of rusty sputum.	No. of cases.	Per cent.	Day of appearance of rusty sputum.	No. of cases.	Per cent.
Day of illness—			Day of illness—		
First ...	4	—	Sixth ...	48	8·6
Second ...	97	17·4	Seventh ...	19	4·5
Third ...	135	24·2	Eighth ...	6	—
Fourth ...	121	22·0	Sputum entirely absent	61	10·9
Fifth ...	65	11·6			

siderable proportion of cases—viz., 10·9 per cent.—sputum was never evident, a large percentage in comparison with the cases in which physical signs were absent or rather not detected. Of 100 cases observed by Emerson 16 had no sputum or "very little."

Herpes.

Herpes labialis—no other situation was observed—was seen in 95 cases—i.e., 17 per cent. Of these only four died (4·2 per cent.), once again confirming the popular impression that the prognosis is more favourable in cases when herpes is present. Geissler¹ observed it in 182 out of 421 cases (43·2 per cent.). Osler gives its occurrence as 12 per cent. (40 per cent.).

Termination.

Crisis.—This occurred in 315 cases, including 5 in whom death subsequently took place and 28 who developed empyema. Table VII. illustrates the day upon which crisis occurred, reckoning from the onset of symptoms.

TABLE VII.

Day of crisis.	No. of cases.	Per cent.	Day of crisis.	No. of cases.	Per cent.
Third ...	25	8·0	Eighth ...	30	9·5
Fourth ...	8	2·5	Ninth ...	16	5·0
Fifth ...	65	20·6	Later than ninth ...	22	7·0
Sixth ...	36	11·4			
Seventh ...	113	36·0			

I had gained the impression that termination by crisis was relatively less frequent in the Aldershot Command than elsewhere, but my percentage (56·5 per cent.) corresponds very closely to that given (60 per cent.) by Powell and Hartley.⁴ Table VII. confirms the general acceptance that the seventh day is the commonest upon which crisis occurs and the ancient belief that the odd days predominate over the even days. I think it probable that the figures for the seventh day should be augmented at the expense of those given for the sixth and eighth days, as in many of these cases some uncertainty as to the day of onset of the illness was present.

Termination by Lysis.

In this connexion one must, in order to obtain figures for the frequency of lysis in uncomplicated cases, exclude not only the 315 cases in whom crisis occurred, but in addition 56 cases in whom death (antecedent to, or in the absence of, crisis) resulted, 88 cases when empyema developed, and 12 other cases with other complications in whom crisis did not occur. This leaves a residue of 87 cases—that is to say, lysis occurred in 15·6 per cent. cases without complication.

Complications.

Empyema occurred in 116 cases—i.e., 20·8 per cent. This is a proportion considerably larger than the general experience, for of 7394 cases investigated by Hector Mackenzie as regards complications,⁵ empyema was present in only 3·48 per cent. Two circumstances explain the very large percentage in my cases. In the first place, I think there can be no doubt that empyema is relatively a very much more common complication in the Aldershot Command than generally. In the second place, empyema is probably very frequently overlooked because the diagnosis of "unresolved pneumonia" is accepted when physical signs persist in the chest and the patient's general condition does not suggest the presence of pus. Exploration of the chest was a routine proceeding at Aldershot; and whilst no undesirable effects ensued from the operation I ascertain that empyema was ascertained and the duration of the illness reduced in many cases in which suspicion of its existence would not have been aroused. Finally, some of the cases included in my series would not be regarded as legitimately empyema in the restricted sense of thick pus (with or without organisms) demanding resection. Of my 116 cases 30 only required resection. In the remaining 86 cases aspiration only on one or two and rarely three occasions was found to be sufficient to cause complete resolution. Such a proceeding naturally cleared up those effusions of a thin serous character containing few pus cells or mononuclears only, but I was certainly surprised at the efficiency of this simple treatment when really thick pus was present, as in the other 60 cases, in 24 of whom

organisms (pneumococci or streptococci) were also identified. Resection was always adopted when it was manifest that extensive drainage was necessary, but I would recapitulate that 86 cases were successfully treated by aspiration alone, of which 26 exhibited thin fluid, usually hemorrhagic and containing mononuclears and few pus cells; 36 thick pus, in which organisms were not demonstrable; and 24 thick pus, containing pneumococci or streptococci. The average period for complete recovery was so short as compared with that of a resection, even a thoroughly satisfactory one, that I am convinced as to the value of this form of treatment, provided the patient's general condition is carefully watched; and even if resection is regarded as desirable, I believe previous thoracocentesis to be an advantageous preliminary.

Among the 116 cases of empyema 23 deaths occurred—i.e., practically 20 per cent. In the series of 7394 cases already quoted the frequency of empyema is given at 3.48 per cent., with a mortality of 1.12 per cent. Even if one excludes the relatively trivial cases and admits only those with considerable pus formation, the occurrence of empyema in the Aldershot Command must have been relatively very high, at least 14 per cent., and the empyema death-rate then rises to 27 per cent., which approximates to the usual expectation. I must at this point express the conviction that influenza played no part in the production of empyema in this series. When the epidemic occurred the percentage of empyema in pneumonic cases was exceedingly high.

Other Complications.

Meningitis occurred in 6 cases—i.e., approximately 1 per cent. The infection in all was pneumococcal and a fatal result ensued in all. Meningismus (i.e., a condition suggesting the possibility of meningitis of some form or other and for which lumbar puncture was performed) occurred in no fewer than 25 cases (i.e., 1.5 per cent.), all of whom recovered.

Pericarditis was discovered in 11 cases only (i.e., 2 per cent.), which is little more than half the percentage given in the big series above referred to and less than half in that of Osler (35 out of 658). Four of the cases died (i.e., 36 per cent.), a much lower figure than that given in Dr. Mackenzie's cases, in which the mortality is just over 70 per cent., and still lower than Osler's 89 per cent.

Infective endocarditis was encountered in 4 cases (0.72 per cent.), which corresponds closely to Dr. Mackenzie's 0.83 per cent.—all 4 cases died.

Of less serious complications or accompaniments jaundice was prominent in 7 cases, arthritis in 2 cases, nephritis in 2 cases, colitis in 1 case, and extensive venous thrombosis in 1 case. Delirium was a very prominent feature in 22 cases (4 per cent.) and 3 cases were actually admitted as cases of acute mania. Among other complications referred to by Dr. Mackenzie, none of which were observed in my series, are peritonitis (0.31 per cent.); otitis media (0.33 per cent.); parotitis (0.05 per cent.); and peripheral neuritis (0.05 per cent.).

Finally, it may be noted that of the 61 deaths 23 occurred in cases with empyema, 6 in cases with meningitis, 4 in cases with pericarditis, and 4 in cases with infective endocarditis. These complications were duplicated on some occasions, so that 23 deaths took place in cases free from any complication.

I am indebted to so many colleagues for their valued assistance that a general expression of gratitude must suffice, but I cannot refrain from a special reference to Dr. Herbert French, late Lieutenant-Colonel, R.A.M.C., and consulting physician to the Aldershot Command, for his generous advice and encouragement and assistance during the greater part of this research.

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AN EXPERIMENTAL STUDY ON THE ORIGIN OF IDIOPATHIC NEPHRITIS.*

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OUR knowledge of the etiology of parenchymatous nephritis is largely based on clinical experience. It is a familiar fact that an acute nephritis may arise in the course of many specific infections, and the production of nephritis by various chemical agents has been the subject of numerous experiments. But such modes of origin are notoriously difficult to account for the majority of cases of acute and chronic parenchymatous nephritis admitted to hospital. Hence the designation "Idiopathic Nephritis" still remains as a term of reproach in our text-books.

Bacteriological examination of the urine from cases of acute nephritis has, in the hands of Scheidemandel¹ and others, shown that pyogenic bacteria are occasionally responsible for the disease. In such cases last in insufficient numbers to cause obvious bacilluria have been obtained on culture of the catheter urine. The causal relationship of these organisms is shown by their disappearance from the urine on recovery of the patients and by confirmatory blood cultures in severe cases. Clinically, the more obviously septic cases are characterised by fever, tenderness in one or both loins, and the appearance of numerous leucocytes in the urine; but in milder forms the picture may be that of a diffuse nephritis.

In chronic cases of parenchymatous nephritis the urine is usually sterile. But in view of the work of Hort,² who employed the urine itself as a culture medium in cases of obscure general infection, I resolved to use incubated urine from a series of cases of nephritis and inject it into animals in the hope of reproducing the disease. At the same time, cultures of this or other material would check any results obtained. This mode of experimentation was based on the assumption that cases of idiopathic nephritis are due to some unrecognised infection of the kidney and that the causative organisms are present with the products of inflammation in the urine and in the kidney itself.

Experiments with Renal Substance.

Soon after the beginning of this investigation I was able to secure a kidney from a patient who had died of acute nephritis complicated by pleurisy with effusion (Case No. 10300). Dr. Yussef Barrada, medical resident at the hospital, had shown a keen interest in the work, and removed the kidney aseptically within two hours of death.

Portions of this organ were at once placed in tubes of sterile liquid serum, while another piece was ground up with normal saline.

Fresh emulsion.—The emulsion in saline was injected into the peritoneal cavity of a guinea-pig. This animal survived, and no albumin could be detected in its urine.

Culture in liquid serum.—These tubes were kept in an incubator for two days and then in a warm room for 15 days. 1 c.c.m. of the fluid from one tube was then injected intraperitoneally into guinea-pig (A). The animal died in six days. Autopsy showed effusion into both pleura, and some lymph adhering to the liver and covering the spleen, which was greatly enlarged. The kidneys were congested, and on section showed marked degeneration of the tubular epithelium with casts in situ.

From the organs of the dead pig and from the material injected pure cultures of a very short Gram-negative bacillus were obtained: they were shown to be identical by the sugar reactions.

Subcultures.—From another tube of serum in which a piece of the human kidney had been placed a subculture was made on blood agar. This showed a growth of the same bacillus described above, with some yeast cells. The growth when a week old was washed off with sterile saline; half was injected into a pig (B), the rest was passed through a Berkefeld filter and at once injected into the peritoneal cavity of another pig (C). Pig (C) injected with the filtrate showed a trace of albumin in its urine, but recovered. Pig (B) showed distinct albuminuria and died in seven days. The

* A paper read at a meeting of the Staff Club, School of Medicine, Cairo.

Note by Dr. J. K. CLARKE.

"The organisms are all short, plump, Gram-negative bacilli, and their cultural characteristics are those of the colityphoid group. Some are motile, some non-motile; some produce indol from peptone water, others do not; and they differ in power of fermenting carbohydrates. The following are the reactions which they give:—

Case No.	Motility.	Glucose.	Lactose.	Dulcitol.	Saccharose.	Mannite.	Maltose.	Indol.
11032	o	AG	AG	AG	AG	AG	AG	++
11235	o	AG	AG	—	AG	AG	AG	++
599	+	AG	AG	AG	—	AG	AG	++
10741	+	AG	AG	AG	—	AG	AG	++
7285	+	AG	AG	AG	—	AG	AG	++
10321	+	AG	—	—	—	AG	AG	++
702	+	A	—	A	—	A	A	++
10290	+	AG	—	AG	—	AG	AG	o
2021	+	AG	—	AG	—	AG	AG	o
5170	+	AG	—	AG	—	AG	AG	o
1814	+	A	—	—	—	A	A	o
1946	+	AG	—	—	—	AG	AG	o

A, acid formation; G, gas production.

As will be seen, the first five are lactose fermenters, 10741 and 7286 giving the reactions of *B. coli communis* and the others being closely allied. 10300, 2021, and 5170 appear to belong to the paratyphoid-Gärtner subgroup. 1814 and 1946 grew very slowly, in contrast to the remainder, whose growth was vigorous, and 1946 fermented glucose, mannite, and maltose only feebly. Another organism (No. 2149) could not be grown in subculture.

Agglutinating sera for the most important of the organisms are being prepared, and when these are ready further experiments will be carried out with a view to a more definite classification."

Injection of Cultures into Animals.

The relation of these organisms to nephritis was tested in two ways: (1) by injection of pure living cultures into animals; (2) by the use of killed cultures as vaccines for treatment of cases of nephritis in man.

Injection of cultures.—In planning these experiments advantage was taken of the results of previous experiments to avoid sources of error. Thus, it had been found that incubated urine and cultures of the organisms in fluid media were often toxic enough to kill guinea-pigs on intraperitoneal injection in comparatively small doses. The animal succumbed to a general septicæmia, and it was quite possible that the nephritis induced was due rather to a profound toxæmia than to a selective action on the kidneys. Hence, quite small doses of an agar culture emulsified in saline were preferable; the injections should be subcutaneous where any local irritant effect could be observed.

Secondly, it was obvious that the urine of guinea-pigs was quite an untrustworthy indicator of any nephritis present. The urine of these animals is so highly alkaline that tests for albumin were generally negative, even when an advanced degree of renal disease was undoubtedly present. So it was resolved to use white rats for preference, since these animals excrete an acid urine normally free from albumin.

Lastly, the experimental animals were to be killed at definite intervals, cultures taken, and specimens for microscopical study preserved in Zenker's fluid to obtain the best results.

For these experiments pure cultures from uncomplicated cases of nephritis were selected (Cases No. 1814, 1946, 2021, and 11032).

No. 1814.—This bacillus was obtained in pure culture from the urine of a boy ill with acute nephritis. Two rats (A) and (C) were each injected with 1 c.cm. of a fairly strong emulsion made from a 24-hour culture; a third rat (B) was injected with 1 c.cm. of sedimented urine after incubation.

All three rats developed an albuminuria within three days, and this persisted until they were killed after varying periods. At first the rats appeared somewhat ill and excreted little urine; later they showed no obvious symptoms. The albumin, precipitated by boiling, occupied from 1.2 to 1.5 of the volume of urine. Some casts were present, but casts could not be identified.

Rat (A) was killed one week after injection. Agar cultures of the heart blood, spleen, and kidney remained sterile. The spleen was greatly enlarged, measuring 1½ in. in length. On section the kidney showed definite hyperæmia and marked granular degeneration of the epithelial cells of the convoluted tubules, the changes being of wide but unequal distribution. The spleen showed a general hyperplasia.

Rat (B), injected with incubated urine, was killed after an interval of two weeks. As before, agar cultures of the blood and kidney remained sterile; the spleen measured 1½ in. in length. On section the kidney showed marked hyperæmia with actual hæmorrhages into some tubules and glomeruli. There was widespread degeneration of the tubular epithelium, and a few glomeruli showed proliferation of the cells lining Bowman's capsule. In places a small-celled infiltration was seen between the tubules.

Rat (C) was killed six weeks after injection of the culture; it had shown persistent albuminuria. Cultures were negative; the spleen measured 1½ inches in length. On section of the kidney there was definite degeneration of the renal epithelium, affecting chiefly the convoluted tubules, with areas of well-marked infiltration of cells, more numerous in the cortex.

No. 1946.—This culture was obtained from a patient who had had nephritis for some ten weeks. 1.5 c.cm. of a fairly thick emulsion was injected subcutaneously into a rat. The animal developed an albuminuria, slight at first, but quite definite after ten days. It was killed five weeks after inoculation, and at this time blood corpuscles and leucocytes were found in its urine. On section the kidney showed hyperæmia with hæmorrhages between the tubules and into some glomeruli. The renal epithelium was degenerated, especially in the convoluted tubules; there was some proliferation of the capsular epithelium in certain glomeruli, and in places a small-celled infiltration.

No. 2021.—This culture was obtained from a case of nephritis of two months' duration; the patient had suffered from malaria, and had a typical attack while in hospital. 2 c.cm. of a thin emulsion of the culture were injected subcutaneously into a rat. Here, again, there was no local reaction, and it was some ten days before albumin was unmistakably present in the urine. The albuminuria, however, persisted until the animal was killed, six weeks later. At autopsy the spleen measured 1½ inches in length. The kidneys showed less epithelial degeneration than in the preceding animals, and there were no hæmorrhages, but a small-celled infiltration was evident in many parts of the cortex.

No. 11032.—This organism was obtained from the urine of a resolving case of acute nephritis. The urine contained some pus, but showed no evident bacteria. Cultures taken from a fresh catheter specimen were sterile, but after incubating the urine for 24 hours a positive result was obtained. 3 c.cm. of this incubated urine in an early experiment had been injected into the peritoneal cavity of a guinea-pig. The animal died in six hours, and from its heart's blood the original bacillus was recovered. Later, the culture obtained on passage was subcultured and a loopful emulsified and injected subcutaneously into another pig. This animal was killed after seven days and bouillon cultures taken of its blood, urine, and kidney. The cultures remained sterile. On section the kidney showed degeneration of the tubule casts in situ and occasional hæmorrhages. The liver showed profound degeneration—almost necrosis of many cells, especially at the centres of the lobules.

Two other guinea-pigs were injected with very small doses of a subculture of the original obtained from the patient's urine. One was killed a fortnight later and showed moderate degeneration of the cortical epithelium with a few hæmorrhages; cultures remained sterile. The second pig was killed after an interval of three weeks, and the results were similar. In this pig the liver was examined and showed very distinct degeneration of the cells.

Summary.—The results of these experiments with pure cultures of bacilli isolated from uncomplicated cases of nephritis may be summarised as follows:—

(a) General effects. Moderate doses did not produce a fatal septicæmia, but there was a well-marked swelling of the spleen which persisted for some time after the blood-stream was free of bacteria. This phenomenon, it may be remarked, is seen in cases of human typhoid, and a similar enlargement of the spleen has been reported in epidemic nephritis in civil life.

(b) Nephritis. The nephritis induced ran a distinct course which varied in intensity according to the virulence of the strain and amount of the culture injected. The chief changes were: An early hyperæmia with degeneration of the renal epithelium, most marked in the convoluted tubules. Later, more advanced degeneration with continued hyperæmia and hæmorrhages into the tubules and occasionally the glomeruli. Casts could be seen in situ. Lastly, some proliferation of the interstitial tissue. In no case did the nephritis show the characters of a septic infection. There were no intense glomerular changes nor leucocytic infiltrations.

(c) Liver changes. In the animals examined for such changes it was found that the bacilli had quite as marked an effect on the liver as on the kidneys. There was profound degeneration, amounting sometimes to actual necrosis, with hæmorrhages.

An interesting feature was the persistence of the renal lesions for weeks after no organisms could be detected on culture of the organ in animals killed at an earlier stage.

Experiments with Other Organisms.

In light of the knowledge gained of the effects of these bacilli obtained from cases of uncomplicated nephritis it was possible to apply the experimental test to other organisms isolated from cases where a secondary infection could not be excluded. This would also afford an opportunity to correlate the effects produced on the kidneys and the liver. For this purpose pure cultures of strains whose characters had been ascertained already were used. The same procedure was followed as in the first series, using the following organisms: (1) Intestinal types, Nos. 10741, 7286, 702, 11203, and 10821; (2) Gram-positive bacilli, Nos. 2136 and 9360.

In each series the animals were inoculated subcutaneously with approximately similar doses and killed at the end of a fortnight. In no case was there any noticeable reaction at the site of injection.

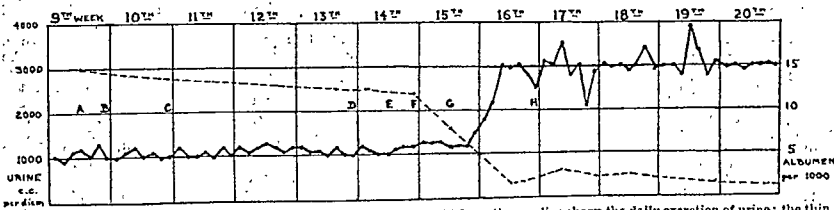


CHART 1.—Case 8934. Chart from ninth week of stay in hospital. The thick continuous line shows the daily excretion of urine; the thin interrupted line the amount of albuminuria. A, Autogenous vaccine No. 1, dose 40 millions; B, 60 millions; C, 100 millions; D, Autogenous vaccine No. 2, dose 20 millions; E, 30 millions; F, Vaccine from Case 11082, dose 25 millions; G, 50 millions; H, 75 millions.

(1) The Gram-negative series showed a very interesting gradation of effect on the kidneys and liver, ranging from the slightest disturbance to an extremely severe lesion.

Organism No. 10741 gave the typical cultural characteristics of *Bacillus coli communis*. The pig injected with an emulsion and killed a fortnight later showed a normal liver and practically a normal kidney. This result was confirmed by an experiment on a rat which was injected with rather a large dose of a *B. coli* culture obtained from a case of simple bacilluria. The animal died in two days and the kidneys showed some hemorrhages, but the renal cells showed little signs of degeneration.

Organism No. 7286 had a slight but distinct effect. The liver exhibited degeneration of scattered cells and the kidney showed some hemorrhages and degeneration of the epithelium in various tubules.

Organisms Nos. 702 and 11203 showed a more powerful toxic effect. There was a diffuse degeneration of the epithelium in most of the renal tubules, especially in the cortex, with occasional hemorrhages. The livers showed degeneration of many cells, with badly staining nuclei, while the liver of the pig injected with No. 702 was riddled with numerous hemorrhages.

Organism No. 10821 had a profoundly toxic effect. The liver showed absolute necrosis with loss of cell outline and nuclei. In the kidneys the epithelium of tubules both in the cortex and medulla were highly degenerated with casts in situ and hemorrhages.

A rat injected with the same culture was killed 30 days later. The liver exhibited distinct degeneration, while the kidneys showed a good deal of tubular degeneration with hemorrhages. During life there was albumin present in the rat's urine.

(2) The Gram-positive bacilli isolated from cases Nos. 2136 and 3360 had little similar effect. A rat injected with organism 3360 failed to develop albuminuria. A pig killed a fortnight after inoculation with organism No. 2136 showed very slight degeneration in some of the renal tubules, while the liver of the pig injected with No. 2136 exhibited a very distinct degree of early fibrosis; the hepatic cells were healthy.

Remarks.—The experiments showed that organisms of strictly *B. coli* type had little effect, while other strains which appeared closely related might cause severe degeneration of the kidneys and liver. In all cases the effect on these two organs was closely comparable.

Trial of Vaccines.

The etiological significance of the cultures obtained from incubated urine in cases of nephritis was tested by their use as vaccines for patients. The following case-histories and charts illustrate the effects produced:—

CASE 8931.—A male of 31 years was admitted in October, 1919, for general oedema and scanty urine of three weeks' duration; there was no history of preceding illness. Examination showed extensive oedema with ascites and a right hydrothorax. The urine averaged 600 c.c. per diem; it had a sp. gr. 1023, was acid in reaction, and contained 12 parts per 1000 albumin. The sediment showed abundant casts, many pus cells, and large non-motile bacilli. Injection of this urine was quickly fatal in guinea-pigs.

The patient was placed on the ordinary treatment and his abdomen tapped. During the first month he improved slightly, the amount of urine rising to a daily average of 1000 c.c. His condition then remained stationary for the next two and a half months (vide Chart 1); the oedema persisted with the same urinary output and an albuminuria of 12 to 16 parts per 1000 (Esbach). Examination of the blood showed no retention of urea.

A vaccine was prepared with considerable difficulty. The large bacilli observed grew unchanged in incubated urine, but on agar lost their staining powers very rapidly. Injections of this vaccine reduced the amount of pus in the urine to a sensible extent, but had no effect on the nephritis beyond reducing the degree of albuminuria to about 12 parts per 1000. The general oedema and quantity of urine excreted were unchanged.

Trial was therefore made of a vaccine prepared from a culture obtained from a case of resolving nephritis in hospital. (No. 11082.) The effect of the first dose of 25 millions was slight, but a second injection of 50 millions was followed by a marked diuresis which persisted until his discharge five weeks later. In the first ten days of this diuresis he lost 21 lb. weight with a rapid disappearance of his ascites and oedema, while the albuminuria fell to the low level of 15 parts per 1000. This striking result was closely similar to that reported in a case of syphilitic nephritis under specific treatment about this time. (No. 10771.)

It appears, therefore, that the bacilli so evident in this patient's urine represented an independent infection and had no causal relation to his nephritis. The success of a vaccine prepared from another case of nephritis indicated that there was another bacillus infecting the kidneys allied to this 11082 organism.

CASE 1814.—A boy of 6 years was admitted with ascites and marked dropsy, stated to have been present for ten days only. The heart was slightly dilated, there was some bronchitis and irregular fever. Both the liver and spleen showed a minor degree of chronic enlargement, probably due to Banti's disease, which is very common in Egypt. The boy showed no signs of congenital syphilis. The urine averaged 250 c.c. per diem; sp. gr. 1023 with syphilis. The urine averaged 250 c.c. per diem; sp. gr. 1023 with syphilis. The urine averaged 250 c.c. per diem; sp. gr. 1023 with syphilis. The urine averaged 250 c.c. per diem; sp. gr. 1023 with syphilis.

On the seventh day after admission he was given a small dose of the 11082 vaccine (10 millions). This was at once followed by an increased output of urine (vide Chart 2), but the diuresis was not

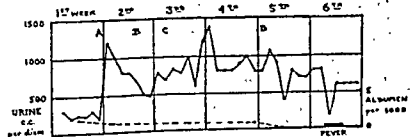


CHART 2.—Case 1814. A, Vaccine from Case 11082, dose 10 millions; B, 12 millions; C, Autogenous vaccine, dose 15 millions; D, 30 millions; E, 50 millions.

maintained and the oedema showed no sensible diminution in spite of a second dose. Meantime a vaccine had been prepared from its bacillus grown in pure culture from a catheter specimen of his urine of a different type to the 11082 organism. Injection of this vaccine of the different type led to a very rapid disappearance of the autogenous vaccine and ascites with a loss of 8 lb. in weight. Convalescence was interrupted by a bout of fever for a few days, but was extremely rapid, and he was discharged with urine perfectly free from albumin.

CASE 2021.—A man, aged 25, was admitted for general oedema. He came on gradually after an attack of fever two months before. His subsequent history shows that this fever was probably malaria. On examination the patient was anemic (hemoglobin 50 per cent.); the spleen was palpable and ankylostomiasis was found in his stool. The urine averaged 1000 c.c. daily, had a sp. gr. 1015, and contained 1 part per 1000 albumin. Microscopically there was an extraordinary number of casts, but no excess of pus or cornicles. He was given oil of chenopodium and received a dose of the 11082 vaccine 50 millions, but then developed intermittent fever. This was found to be malarial and yielded to quinine. Neither the vaccine nor thorough quinine therapy had any effect on the nephritis.

Meantime a culture had been secured from the catheter urine, before the onset of fever, and at once as the temperature had

received a small dose of autogenous vaccine (25 millions) was given, but without result (vide Chart 3). Nine days later a larger dose of 100 millions was injected and was immediately provocative of an unmistakable diarrhoea. Unfortunately, the patient had developed a troublesome diarrhoea, and insisted on his discharge rather than submit to a restricted diet.

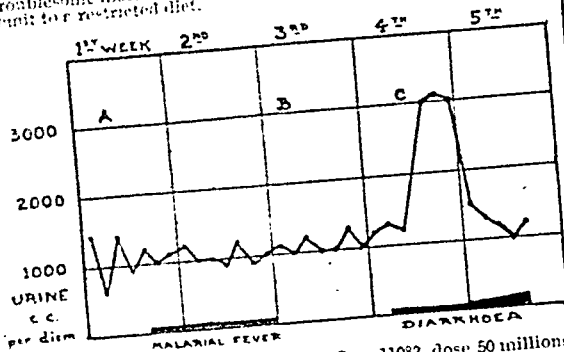


CHART 3.—Case 2021. A, Vaccine from Case 11082, dose 50 millions. B, Autogenous vaccine, dose 25 millions; C, 100 millions.

Of course one case proves nothing, but the course of the nephritis in this patient shows that it can hardly have been malarial in origin, and I confess to being somewhat sceptical of the large rôle assigned to this fever in the aetiology of nephritis in warm countries.

CASE 4377.—A man, aged 24, was admitted for general oedema and breathlessness of gradual onset for the past four months. The swelling had first appeared in the eyelids, then in the scrotum and abdomen, and last in the limbs. On admission there was ascites and the heart was dilated and irregular without murmurs; the blood pressure was unusually low (systolic 97 mm.; diastolic 74). The urine was of high sp. gr. and contained a fair trace of albumin; the daily amount excreted is shown in Chart 4. Microscopically, numerous granular casts were found; cultures were sterile.

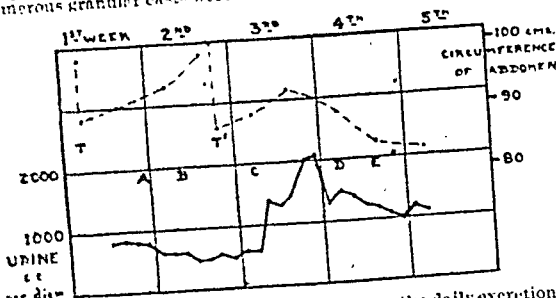


CHART 4.—Case 4377. The continuous line shows the daily excretion of urine; the interrupted line shows the variations in the ascites recorded by measurement of the abdominal circumference. T, Abdomen tapped (8500 c.cm.); T', Second tapping (8500 c.cm.). A, Vaccine from Case 11032, dose 50 millions; B, 100 millions; C, Vaccine from Case 1814, dose 50 millions; D, 80 millions; E, 125 millions.

The patient failed to improve after admission to the ward. His abdomen was tapped and 8 litres withdrawn, but the fluid at once began to reaccumulate, in spite of treatment with digitalin and saline purgatives. Two doses of the 11032 vaccine were administered, but the output of urine fell rather than increased, and the ascites had to be tapped again. Since the temperature had been slightly irregular the possibility of septic endocarditis was considered, but a leucocyte count was normal (8150).

Finally, a trial was made of the 1814 vaccine, and the patient immediately responded. In spite of the heat of an Egyptian summer there was a decided diuresis, and the tide of accumulating ascitic fluid was turned. As in the other cases there was no rise of blood pressure, but the heart became regular and smaller in size. The granular casts practically disappeared from the urine, and the patient made a rapid recovery from his very serious condition.

The special interest in this case lies in the effect of one particular vaccine on a case of chronic nephritis with dilated heart, when the urine was sterile. A similar result was obtained in another patient with marked oliguria and dropsy, but without any sign of heart failure and only occasional albuminuria.

Control cases.—To check these results a trial was made of these vaccines for cases of chronic cardiac disease and of hepatic cirrhosis with ascites, but in no instance was any diuretic or other effect observed. A vaccine prepared from a Gram-positive bacillus (Case 3360) had no effect on the nephritis of this patient.

Remarks.—The above examples show that the effect of vaccines is specific, and is only obtained when a suitable strain of organism is used. The reaction is usually immediate, but may occur after

two or three days' interval. Naturally a great deal more work requires to be done before the best methods of using vaccines can be evolved. But it can be stated that the use of autogenous vaccines is generally indicated since the strains of bacilli isolated show decided differences. Such vaccines, however, may fail in cases complicated by some other infection of the urinary tract, for they may contain few organisms derived from the kidneys. Dr. Clarke has tried plating such cultures on McConkey's medium so as to isolate bacilli of intestinal type. For early use in such cases, and for patients in whom the acute stage is passed and the urine may remain sterile on incubation, stock vaccines are of value. It is proposed to try large doses of detoxicated vaccine made by pooling vaccines prepared from the various strains already isolated and others doubtless to be found in the future.

Discussion of Results.

These investigations indicate that many cases of "idiopathic" nephritis—acute, subacute, or chronic—may be due to infection by bacilli of intestinal types. In its mode of origin the affection would therefore be akin to colon bacilluria, but the particular forms responsible attack the renal epithelium and not the urinary tract. The type of lesion reproduced experimentally is essentially a tubular nephritis. The severe forms of glomerulo-nephritis seen in some specific fevers and septic infections appear often due to pyogenic bacteria (especially streptococci) or other organisms responsible for a septicæmia. But while the bacillary form described in this paper never appears to present the features of a septic nephritis, it can cause hemorrhage from the kidney.

It is well known that a nephritis once established has a strong tendency to become chronic. The nephritis induced by injection of the bacilli isolated exhibited a similar tendency, although it was rarely possible to recover the germs from the animals infected when the early stage was past. This fact may explain why the urine from cases of chronic parenchymatous nephritis in man is so often sterile. In such cases the acute stage of the infection has passed leaving the kidney severely damaged, its powers of recovery possibly jeopardised by injudicious feeding before the nature of the disease was apparent. The work of Allen on experimental diabetes has shown that, in a dog whose pancreas has been reduced to a minimum, a fatal progressive diabetes may be induced or avoided according to the diet given. Recovery from acute nephritis is probably largely influenced by a suitable diet. On the other hand, in chronic cases a vicious circle may follow the excessive loss of serum albumin in the urine. Hence we should always expect to find germs in the urine of acute nephritis (apart from cases of poisoning), but not necessarily in the chronic stages.

Following the work of Opie and Oertel on the changes produced in the liver as well as in the kidney by the chemical excitants of nephritis, in my later experiments I found the same to hold true of bacillary nephritis. Although this result may seem at variance with our ideas of nephritis it is not opposed to clinical experience. For in the two diseases of man which are invariably associated with nephritis—i.e., eclampsia and infectious jaundice (spirochetosis ictero-hemorrhagical)—the changes in the liver are notoriously as important as those in the kidneys. And it is an aphorism that in febrile cases with jaundice the urine is albuminous, an observation which illustrates the close relation between these organs both in function and liability to disease.

On this point, as indeed on the others raised, much work remains to be done. But the probability of hepatic lesions being coincident with the renal changes in parenchymatous nephritis should be taken into account in investigating the metabolic disturbances that occur in the disease. It is possible, for instance, that a non-retention of uræa may partly depend on a defective formation of this substance by a diseased liver.

Summary.

(a) From the urine of patients with "idiopathic" nephritis and from the kidney of a case of fatal nephritis.

bacilli of intestinal types have been isolated in pure culture.

(b) Injection of these cultures and subcultures into animals provokes an acute nephritis.

(c) From the kidneys of these animals in the earlier stages of nephritis the bacilli injected have been recovered in pure culture.

(d) Injections of cultures obtained from animals infected with these bacilli have reproduced the disease in other animals.

(e) The nephritis induced runs a somewhat prolonged course, and is accompanied by acute degeneration of liver cells and an enlargement of the spleen in the early stage.

(f) In human cases of nephritis treatment with appropriate vaccines has caused rapid amelioration.

(g) In some cases of nephritis a secondary or an independent infection of the urinary system may be present and obscure the original cause. This complication is probably more common in Egypt than elsewhere owing to the prevalence of bilharziasis.

In conclusion, it is my pleasant duty to record the valued help of my friend Dr. Clarke, who is responsible for the bacteriological classification and has done much to help the research. My thanks are similarly due to Dr. Yussuf Barrada, who secured so many cases of nephritis for my section, and to my house physicians for their care of the patients, collection of urine, and injection of vaccine.

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THE USELESSNESS OF ANTIMONY IN THE TREATMENT OF FILARIASIS.

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Sir Leonard Rogers has recently reported some observations upon antimony injections given intravenously for the treatment of filariasis, and has pointed out that very careful and prolonged counts are necessary before coming to a conclusion as to the efficacy of this treatment. His results, on the whole, appear to indicate that these injections have a definite effect in greatly reducing the filarial embryos or causing them to disappear from the peripheral blood, presumably as a result of the destruction of the adult worms.

Recital of a Case.

One of us (G. C. L.) has recently pointed out that for all filarial work, such as estimating embryos, it is essential that measured quantities of blood should be taken, and that before any treatment is commenced the number of embryos occurring regularly in the blood should be known accurately. Variations are not uncommon, and may give rise to false impressions. The drug may act either by killing the embryos or by killing the adults or by killing both. Having had the opportunity of studying a case of filariasis (*F. bancrofti* infection), with plenty of embryos present in the night blood, we gave the patient a series of tartar emetic injections intravenously, and controlled these by nightly examinations of the blood, both before, during, and after the injections, the same measured quantity of blood (20 c.mm.) being taken at the same hour nightly. Dried films were made, the haemoglobin then being washed out and the film stained with fuchsin. For the determination of death of the embryos wet cover-glass preparations were also employed.

History of the case.—Mr. V., a native of India, had lived there all his life till he came to England in July, 1919.

Previous illness.—No dysentery, no malaria, no venereal disease. *Present illness.*—This began with an abscess on the inner side of the left thigh over the adductor tubercle ten years ago. *F. bancrofti* embryos were found in his night blood then. Six years ago he had another abscess, this time in the left groin; it was deep and was operated on and drained. In 1914 an abscess developed in the scrotum. After that the scrotum began to enlarge, the enlargement being of an intermittent nature and sometimes disappearing entirely. The attacks of enlargement were accompanied by pain, fever, and general malaise. Finally, the condition passed into a permanent one and definite elephantiasis supervened. The patient saw Sir James Cantile on coming to London in 1919. The latter operated upon him, removing the elephantoid scrotum with successful results. Since then the patient has been living in England and has suffered from no further febrile attacks.

Examination.—Teeth had all been taken out for pyorrhea. Heart and lungs normal. Urine: No albumin, blood, or sugar.

Filarial condition.—Has had an elephantiasis of scrotum, successfully operated on. Penis also slightly affected. Deep scar in left groin, also another on inner side of left thigh. Glands enlarged just below Poupard's ligament on left side. Discharge no enlargement.

Blood.—A fair number of *Filaria bancrofti* embryos in night blood; definite nocturnal periodicity.

Injections and Filarial Counts.

Tartar emetic injections were given intravenously in the usual manner, commencing with $\frac{1}{2}$ gr. and increasing by a gr. each time till $2\frac{1}{2}$ gr. was reached, a total of $17\frac{1}{2}$ gr. in all being given. The patient bore these very well without ill-effects.

The following table gives the details of the filarial counts and the injections:—

(A) Number of filarial embryos in 20 c.mm. blood.
(B) Number of grains of A.T. injected.

Date.	Hour	(A)	(B)	Date.	Hour	(A)	(B)	Date.	Hour	(A)	(B)
1920.	P.M.			1920.	P.M.			1920.	P.M.		
June 21	11.55	15	—	July 10	11.55	15	—	July 27	—	20	—
" 22	" 17	"	"	" 11	" 17	"	"	" 28	" 17	"	"
" 23	" 15	"	"	" 12	" 15	"	"	" 29	" 4	21	"
" 24	3	0	—	" 11.55	16	—	—	" 30	11.55	22	—
" 25	11.55	13	—	" 15	" 16	—	—	" 31	" 18	"	—
" 26	" 14	"	"	" 15	" 4	2	—	Aug. 1	" 20	"	—
" 27	" 10	"	"	" 11.55	9	—	—	" 2	11.55	21	—
" 28	3	0	—	" 16	" 22	—	—	" 3	" 19	"	—
" 29	11.55	21	—	" 18	" 23	—	—	" 4	" 17	"	—
" 30	" 12	"	"	" 19	" 21	2	—	" 5	" 7	"	—
July 1	" 14	"	"	" 11.55	10	—	—	" 6	" 20	"	—
" 2	" 15	"	"	" 20	" 21	—	—	" 7	" 19	"	—
" 3	" 25	"	"	" 22	" 21	—	—	" 8	" 13	"	—
" 4	" 25	"	"	" 22	" 21	—	—	" 9	" 16	"	—
" 5	4	—	—	" 11.55	10	—	—	" 10	" 10	"	—
" 6	11.55	15	—	" 23	" 18	—	—	" 11	" 17	"	—
" 7	" 15	"	"	" 25	" 22	—	—	" 12	" 10	"	—
" 8	4	1	—	" 25	" 4	21	—	" 13	" 14	"	—
" 9	11.55	4	—	" 11.55	15	—	—	" 14	" 22	"	—
" 10	" 12	—	—					" 15	" 15	"	—

* It was decided at this date to stop the injections as they were doing no good.

Discussion of Results.

A perusal of the above table shows that the injections, consisting of a total of $17\frac{1}{2}$ gr. of tartar emetic, had no effect upon the infection at all, the adult worms not being killed and going on pouring embryos into the blood as before. The embryos were not all killed either as, even though reduced in numbers as on the night after the injections, those present were alive and healthy.

The only feature worthy of note is, that at first there were fewer embryos in the sample of blood taken on the night of the injections which were given at 4 P.M. This is not surprising when one considers that they would be in the lungs at that time and that the antimony would come in direct contact with them in a concentrated solution. That there was no effect upon the adults is shown by the numbers being up to normal the next evening and afterwards. Further, towards the end of the injections, even although the large dose of $2\frac{1}{2}$ gr. was being given, this temporary disappearance was no longer noticeable, the number found on the same evening as the injections being up to the average, or even a little above. The table illustrates also the considerable constancy, in this individual case, of the number of embryos in the blood every evening. If the female worms constantly pour young into the blood, then there must be a corresponding destruction going on, to keep the numbers at this mean rate. Possibly on the days when over 20

embryos per slide were found there may have been an increased out-pouring from the female; or, of course, there may have been several females present giving birth to embryos intermittently.

It would appear, therefore, that antimony is not to prove a specific for malarials as it is for bilharzial infections, but the only way finally to decide this point is to follow up cases, as has been done above, all results being checked by careful enumerations of the embryos. We have to thank Sir James Cantlie for letting us test the efficacy of the injections in this case.

NOTES ON THE TREATMENT OF RECURRENT MALARIA BY NOVARSENO BENZOL.

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So much has already been written as to the nature of malaria, the clinical and other characters of the disease, and the lines of treatment found to be most successful, that I propose here only to touch on a series of cases of recurrent malaria treated by intramuscular injections of novarsenobenzol (neokharsivan). Having seen during the last three years at least 500 muscular injections of novarsenobenzol (neokharsivan). I was struck by the fact that in all these cases the usual varieties of routine quinine treatment (i.e., by the mouth, intramuscular and intravenous) had been tried, in many cases pushed so far as to produce temporary blindness and deafness, and yet upon arrival in England the patients were still suffering from the disease, as shown by blood smears and a differential count. I therefore decided to venture on another line of treatment.

Rationale of Treatment.

My reasons for using novarsenobenzol were:

1. Because it has been conclusively proved that the malarial fevers are protozoal infections, infecting the red corpuscles of mammals, reptiles, and birds.
2. Because the organic compounds of arsenic in its trivalent form are more potent in action upon protozoa.
3. Because it is known to destroy the *Spirocheta pallida*, the balance of opinion now being distinctly in favour of the *Spirocheta pallida* being a protozoon.

The reason why the *Spirochetes* vanish so quickly after salvarsan, or neokharsivan, is that they contain free OH groups, since in their colloidal lipid membrane an unsaturated fatty acid exists. It is to these OH groups that the metals become attached, with the result that the organisms perish. I therefore hoped the same result might take place with the malarial parasite.

The preparation used was novarsenobenzol (B. W. and Co.), which is easily soluble in water, yielding a neutral solution suitable for intramuscular or intravenous injection. The first two injections consisted of 0.3 g. in 5 c.c.m. 0.5 per cent. sterile saline, and the last two injections of 0.4 g. in 7 c.c.m. 0.5 per cent. sterile saline. These injections are given at intervals of one week. A line is drawn backwards from the anterior superior iliac spine to the top of the navel fold; this line is divided into three equal parts; the point of intersection of the upper and middle third is the site of injection. All the usual antiseptic precautions should be taken with regard to the sterilisation of needles and syringe. The night before treatment the patient is given a laxative, the following morning, three hours before the injection, he is given a light breakfast, and the food on that day should be light so as to throw as little strain as possible on the digestive organs during the elimination of arsenic. The patient should stay in bed for at least three hours after the injection, and in order to prevent any after-pains or reactive painful infiltration hydrophobic measures such as moist compresses, hip-baths, or the application of a hot-water bottle may be employed.

If the pain is very severe I give the following powder, which I find efficacious: Pyramidon, 10 gr.; mechnal, 3 gr.; heroin hydrochlor., 1-12 gr. In between the injections he is kept on mild malaria (contains 2 gr. quin.).

In all cases an examination of the blood is made before each injection with regard to the presence of the malarial parasite, and a differential blood count to ascertain especially any increase of the large mononuclears. This is a very important feature, as in cases where the parasite cannot be demonstrated in the blood the mononuclear reaction, along with the presence of pigment in the mononuclear cells (due to phagocytosis of pigment formed by the parasites), has been taken as evidence that the case is one of malaria. The mononuclear reaction is especially interesting from the fact that in other protozoal diseases an activity of the same elements has been observed.

Notes on Cases.

The following cases were all treated by intramuscular injections.

CASE 1.—Capt. E., R.A.M.C. (T.), the first patient of the series, was suffering from malignant malaria, contracted in Palestine, which produced pyrexial relapses every fortnight in spite of 14 intramuscular injections of quinine, and 45 gr. or more by the mouth daily for a month, followed by 30 gr. for three months. The intramuscular injections and one intravenous. He was hypersensitive to arsenic and developed a rash and acute asthmatic symptoms. Inadequacy of quinine. The effect of neokharsivan injections was to extend the fortnightly periodicity of relapses to an interval of two months in the first series, and to six months for the second series of injections.

Treatment started on May 19th, 1919. Patient left hospital on Sept. 19th, 1919; reported no relapse in December, 1919, and up to date (July, 1920) reports no recurrence. This patient had four intramuscular injections and one intravenous. He was hypersensitive to arsenic and developed a rash and acute asthmatic symptoms. Inadequacy of quinine. The effect of neokharsivan injections was to extend the fortnightly periodicity of relapses to an interval of two months in the first series, and to six months for the second series of injections.

CASE 2.—Lieut. B., age 36. Type, M.T. Previous attacks 21: Five injections from July 24th to August 26th, 1919. Left hospital well. Reported Oct. 23rd, 1919. No relapse.

CASE 3.—Lieut. P. Type B.T. Four injections. No malaria parasites present upon discharge. An acute attack of exfoliative dermatitis after last injection.

CASE 4.—Lieut. E. Type B.T. Sept. 18th, 1919, four injections. Left hospital Dec. 19th quite well. Reported Feb. 7th, 1920.

CASE 5.—Capt. S. Type B.T. Four injections Sept. 18th, 1919. Left hospital Dec. 19th, 1919, quite well. Reported Feb. 7th, 1920. No relapse.

CASE 6.—Lieut. L. Type B.T. Five injections. Discharged quite well Oct. 5th, 1919.

CASE 7.—Lieut. A. Type M.T. Ten previous attacks occurring every two weeks. Four injections. Discharged quite well, December 1919. First injection Oct. 14th, 1919. Reported hospital Feb. 20th, 1920. Very well. No relapse.

CASE 8.—Capt. M., R.A.M.C. Type M.T. Four injections. Discharged quite well Oct. 8th, 1919.

CASE 9.—Lieut. B. Oct. 31st. Type M.T., contracted in Macedonia. Fifty-four attacks. Spleen enlarged, tender. Four injections. Left quite free Dec. 20th, 1919.

CASE 10.—Lieut. B. Type B.T. First injection, Nov. 11th, 1919; fourth injection, Dec. 3rd, 1919. Left hospital free. Reported hospital March 25th, 1920. No attacks for over four months.

CASE 11.—Lieut. D., R.A.F. Type B.T. Four injections. Left hospital Feb. 25th, 1920, quite well. Seen in June, 1920. No recurrence.

CASE 12.—Lieut. W., R.A.F. Type B.T. First attack in Persia, 1916; since 14. Completed course, four injections. Discharged quite well Jan. 19th, 1920.

CASE 13.—Lieut. J., 31st Punjab. Type B.T. First attack India, 1916; since ten. Four injections December, 1919. Pathological laboratory report: No parasites present.

CASE 14.—Lieut. F., R.F.A. Type B.T. First attack Batoum, 1917; since 5. November, 1919, four injections. Discharged free Jan. 25th, 1920.

CASE 15.—Capt. P., 2nd Gloucesters. Type M.T. First attack, 1917; since 12. Four injections. Discharged free Feb. 18th, 1920.

CASE 16.—Lieut. B., R.F.A. Type B.T. First attack India, 1919; Four injections. Discharged free.

CASE 17.—Lieut. F., R.A.F. Type B.T. First attack India, 1919; since 4. December, 1919, four injections. Reported hospital Feb. 7th, 1920. Quite free.

CASE 18.—Lieut. W., aged 24. Type M.T. Dec. 17th, 1919. M.T. parasites present. No history of malaria. Symptoms very pronounced—malaria, cachexia, anemia, jaundice, vomiting, bile-stained feces normal in colour. Dec. 18th temp. 101° F. First injection 0.3 g. N.K. Dec. 18th temp. 101° F. Patient feels better; jaundice commenced to disappear. Dec. 17th temp. 101° F. First injection 0.3 g. N.K. Dec. 18th temp. 101° F. Patient feels better; jaundice commenced to disappear. Dec. 17th temp. 101° F. Patient feels better; jaundice commenced to disappear. Dec. 17th temp. 101° F. Patient feels better; jaundice commenced to disappear.

CASE 19.—Major D., aged 35. First attack September, 1919. Type M.T. This was the most difficult case of all to deal with. Had nine intramuscular injections, one intravenous. Left hospital on May 1920. Pathological laboratory report: No M.T. present.

CASE 20.—Capt. P. Type B.T. Jan. 3rd, 1920, first injection completed. Course of four. Feb. 21st, 1920, reports no recurrence.

Conclusion.

It will be noticed that in the 20 cases here reported 12 were Type B.T. and 8 Type M.T., none of which have reported a recurrence. To the above-mentioned I can add another 18 cases, of which I have

fallen to normal, while the large lymphocytes had increased from 5.5 per cent. to 13 per cent. The latter rather points to malaria as a factor in the case. It was unfortunate that because of the rigidity of the muscles of the back and the fact that he took the anæsthetic so badly we were unable to obtain a specimen of his spinal fluid for examination: the Wassermann test on the blood was negative. The patient was delirious and violent on the third night after admission. His principal symptom was drowsiness: this deepened into coma on the fourth day, and after an interval of consciousness he again became comatose on the ninth day. Another marked feature was the rigidity, especially of the muscles of the back and of the abdominal wall. It is interesting to note that the abdomen remained rigid for some days after the general stiffness had disappeared.

As regards treatment, although parasites had not been found in his blood the treatment was carried out in accordance with the rule that all persons who have resided in a malarial district and suddenly become comatose should be treated with large doses of quinine by the intravenous and intramuscular or rectal routes.¹

The end in this case appears to have justified the means, and was characterised by a rapid return to consciousness after the initial coma on Nov. 16th, 1919, and again after the relapse on the 21st. I do not, of course, suggest that the recovery of this patient was due to the treatment he received, but the speedy manner in which he seemed to react to the intravenous injection of quinine gives food for thought.

The case may have been one of cerebral malaria—the history and second differential leucocyte count are in favour of this. On the other hand, it may have been some form of encephalitis—the rigidity of the muscles in the acute stage, the lethargy, the mental condition, the diplopia, the myoclonic movements in the later stages, and the first leucocyte count would appear to justify this diagnosis.

Clinically, apart from the result of the treatment, the case certainly did not conform to the type of cerebral malaria we saw in Macedonia.

Of the sequelæ the mental condition, the rhythmical movements, the sudden muscular spasms, the pill-rolling movements of the fingers and thumb, the absence of paralysis, the report on the condition of the eyes by the hospital ophthalmologist, and the slow but steady recovery of the patient should be noted.

THREE CASES OF ARTHROPLASTY.

BY C. D'OYLY GRANGE, O.B.E., M.B., F.R.C.S. ENG.,
ASSISTANT SURGEON, MARLBOROUGH INFIRMARY.

THE following cases of arthroplasty following gunshot wounds of joints are described, as few similar cases seem to have been recorded, and they show that the limbs can be greatly improved by such operations.

1. *Gunshot wound of left buttock followed by dislocation of hip, with ankylosis.*—Pensioner J. T. was admitted to the Northumberland War Hospital in October, 1916, having been wounded more than a year previously. His chief wound was in the left buttock, the posterior lip of the acetabulum having been destroyed, and this had allowed of dislocation of the head of the femur on to the dorsum illi. Here bony ankylosis had taken place with internal rotation of the thigh. The sciatic nerve had been partially injured. Drop-foot was present, and there were trophic sores on the toes. The right knee was ankylosed. When admitted there were several sequestra in the left ilium, and these were first removed. The wounds took a considerable time to heal, and the operation of arthroplasty had to be delayed owing to the fact that the trophic sores on the toes caused repeated attacks of inflammation in the skin and subcutaneous tissue of the leg and thigh. It would have been better if the foot had been amputated at this time, as it had to be done later.

Operation.—On Oct. 6th, 1917, arthroplasty was performed, the neck of the femur being divided and a false joint made between neck and head of the femur in the following manner. The patient lay slightly on his right side, with a sand-bag under the left buttock. A curved incision was made midway between the crest of the ilium and the great trochanter. The muscles were split in the line of this incision until the neck and the head of the femur were laid bare. The head was firmly ankylosed on to the ilium. The tissues were freed from the neck, and it was then cut by a Gilk. saw close to the head in an oblique direction,

the line sloping from above downwards and inwards. The lower part of the head was now cut away with a chisel and the upper part hollowed out to form a cup, into which the neck fitted after the edges had been rounded off. A flap of gluteus medius was then sutured over the raw end of the neck and a loose flap of fat from the buttock was placed in the cup in the head of the femur. The neck fitted quite well into this cup, and when the gluteus medius and minimus had been sutured there was no tendency for it to become displaced. The wound was completely sutured and a Liston splint with weight extension was applied for two weeks. Healing was slightly delayed by the presence of a hematoma, which would have been avoided by the use of a small drain; but in spite of this the patient very quickly began to move his limb and to sit up in bed, and within two months he could flex his hip to a right angle. The condition of his foot did not improve, and accordingly a Syme's amputation was done in March, 1918. This, however, allowed of the fitting of an artificial limb, with the result that the left leg was equal to the right in length, and he began to walk. When seen in January, 1919, he could flex the left hip to a right angle, and stated that with his artificial leg he could walk seven miles. He considered the left leg better than the right, owing to the ankylosis of the knee on that side.

This operation is a little more difficult when the head of the femur is ankylosed in the acetabulum because the neck is deeper. Murphy's method of sawing off the great trochanter might be easier, but I have not tried it.

2. *Gunshot wound of right shoulder followed by ankylosis.*—The patient, Corpl. M. M., was wounded by shell in March, 1916, and was admitted to the Northumberland War Hospital in April. Several pieces of metal had entered his right shoulder from above, causing a large flesh wound, fracturing the clavicle and the acromion, and passing down into the head of the humerus and into the arm. In May several loose pieces of bone and some pieces of metal were removed from the head of the humerus, and the cavity was filled with bone from the head of the humerus, but the wound did not heal. In August the B.I.P.P. and B.L.P.P. were removed, and a long tract was found passing some four inches down the humerus. Stereostagrams revealed a piece of metal embedded in the bone, and this was removed through an incision posteriorly. The wound then healed. The result was ankylosis of the shoulder-joint in a slightly abducted position, with a good deal of destruction of the head and great tuberosity; the fractures of acromion and clavicle united, and there was a good deal of scar tissue above the shoulder where the skin wounds had closed. The condition of the patient was not good, he was very anæmic and thin, so nothing surgical was done for some time. He found the arm of very little use to him, as with scapular movement he could only abduct it 30°. This movement was probably limited owing to the injury to the outer end of the clavicle, and consequent limitation of movement of the acromio-clavicular joint. Flexion of the arm was almost nil and there was no rotation.

Operation.—On April 14th, 1917, arthroplasty was performed. An incision was made along the lower border of the clavicle and down the front of the arm for three inches, another was made just below the acromion process to meet the first incision, and a third below the clavicular part of the first, allowed the flaps of fascia to be taken off the pectoralis major. The pectoralis major was divided where it crosses the axilla, and the anterior half of the deltoid was also cut through half an inch below the acromion process and turned down. This exposed the short head of the biceps and coracobrachialis arising from the coracoid process; these were divided, as was also the pectoralis minor. The vessels and nerves were pushed downwards and inwards, the subscapularis was exposed and divided, and the head of the humerus thoroughly exposed. There had been a good deal of destruction of the head and a considerable amount of outgrowth of bone, with the result that the head of the humerus was very irregular in outline, and considerable difficulty was experienced in freeing the capsule and muscles on the posterior surface. When this was done a large joiner's chisel was used as the humerus was separated from the body of the scapula as near the joint line as possible, but a part of the axillary border of the scapula came away with the humerus, and it had to be excised. The head of the humerus was rounded off as much as possible and the glenoid smoothed down, and then a large flap of superficial fascia was turned in from the surface of the pectoralis major. The flap was hinged externally by two pedicles, which allowed of the muscles being sutured between them. The subscapularis muscle was then sutured, followed by the coracobrachialis, short head of the biceps and pectoralis minor, and, lastly, the deltoid and pectoralis major. The long tendon of the biceps must have been destroyed during the earlier months of suppuration, for it was not present over the upper part of the humerus. The wound was closed and the arm put up with the shoulder abducted 45°. There was considerable oozing during the whole operation and for several days after; the patient always bled freely, and a small part of the pectoral flap, being very thin, sloughed, and a small remained over the head of the humerus. After repeated skilograms and examinations with a probe, with negative results, the sinus was opened up and a sequestrum was removed. It was evidently one of the chips from the head of the humerus which had been overlooked, and after its removal the amount of damage done by the operation, considering the amount of damage done by the wound, was good. Active abduction to 45° and flexion to 45° could easily be obtained quite painlessly, together with 60° of rotation. Passive flexion and abduction could be obtained to 90°.

3. *Gunshot wound of right elbow followed by ankylosis.*—Pte. F. D. was admitted in April, 1918, having received several wounds on the outer side of the arm and forearm about ten days previously, one of which opened up the elbow-joint. The wounds were dressed with B.I.P.P. and healed in eight weeks, but complete ankylosis of the elbow at an angle of 90° resulted, without, however, any loss of bone. The arm was treated with radiant heat and massage for two months, and then arthroplasty was done on Sept. 3rd.

Operation.—An incision 4 inches long was made on the outer and one on the inner side of the joint, and these were joined by a transverse incision across the arm above the olecranon. The ulnar nerve was dissected out and retracted inwards to avoid any

REVIEWS AND NOTICES OF BOOKS.

Reviews and Notices of Books.

THE PATHOLOGY OF WAR GAS POISONING.

Collected Studies. By M. C. WINTERITZ, Major, M.C., U.S.A. London: Humphrey Milford; Oxford University Press. Newhaven: Yale University Press. 1920. Pp. xxi. + 165. 41 plates. £4 4s.

IN his collected studies, issued by the Oxford and Yale University Presses, Major Winternitz presents a handsome monograph on the pathology of war gas poisoning, based on the researches of his own department of the Chemical Warfare Service, U.S.A. The work deals almost exclusively with pathological anatomy and morbid histology of the organs of experimental animals examined at various intervals after exposure to warfare gases. The changes observed in the respiratory system during the acute period of poisoning are described with great care for each of the two main types of lesion, attention is again drawn to the epithelial destruction, produced: on the one hand epithelial destruction, especially in the upper air passages; and, on the other, damage of the lung capillaries with resulting pulmonary oedema. According to the degree in which one or other element predominates the gaseous poisons may be arranged in a series at one end of which stands phosgene, an almost purely pulmonary irritant, while at the other end may be placed mustard gas, which exerts its effects almost exclusively on the air passages, producing membranous tracheitis and bronchitis. Chlorophenol, chlorine, and the phenyl arsines come intermediately, producing both effects; in the order named they cause successively less pulmonary oedema and more epithelial damage, the results being fairly characteristic for each individual agent. In relation to the oedema of the lungs it is remarkable that Winternitz has failed to observe the specific damage to pulmonary capillaries, with thrombosis, which British and other observers have repeatedly described; the omission is possibly due to the placing of too much reliance on special fibrin staining for the recognition of thrombi.

Following the description of the acute phenomena due to the poisons themselves there is given an account of the inflammatory changes which result from subsequent infection. In dogs, which were most often used, infection occurred with great regularity and often produced fatal results in animals which would have recovered from the effects of the gas alone. In the British experiments on goats infections played an inconspicuous role, and it is probable that in this respect human victims occupy an intermediate place as regards susceptibility. The section of the book which at the present time possesses the most directly practical value deals with late and permanent lesions found of gassing, studied at periods up to six months after exposure. The most important lesions found during this period are emphysema, bronchiectasis, collapse of lung, and obliterative bronchitis, all of which may be complicated by chronic septic foci from which acute lesions may arise from time to time. In the final chapters some preliminary observations are given on experimental lavage of the lung through the trachea with a view to washing out irritant materials which have lodged there.

The book is profusely illustrated by excellent coloured drawings. While it is improbable that this work will now appeal to a wide public, it forms a record of experimental observations of high scientific value, and it will prove an interesting and suggestive book of reference to those who may still have to deal with the effects of gas poisoning in soldiers.

GNOCOCCAL INFECTION IN THE MALE.

By NORMAN LUMB, O.B.E., M.B., B.S. London: John Bale, Sons, and Danielsson. 1920. Pp. 328. 25s.

THIS work gives a plain straightforward account of the treatment of gonorrhoea in the male. Only those methods of treatment are described which have definitely proved successful in the hands of the author:

the book is eminently a practical one, and little space is devoted to questions of theory. The description of the various methods of treatment is clear and assisted by excellent illustrations. Mr. Lumb believes that skill in the use of the urethroscope is essential to the successful treatment of gonorrhoea, and for this reason devotes considerable space to the subject of urethroscopy. This portion of the work is enriched with coloured plates illustrating the various appearances; both normal and abnormal, that are to be met with during the process of urethroscopy. A complete chapter is allocated to a subject of keratoderma blennorrhagica, in our opinion a somewhat over-liberal allowance. On the other hand, that all-important subject, the standard of cure, is squeezed into a chapter devoted to a consideration of impotence and sterility. However, in spite of certain features inviting criticism Mr. Lumb's book affords a good and practical description of the treatment of gonorrhoea. It will be useful to those who already possess a certain knowledge of the subject, but who are lacking in those refinements of technique that make the difference between success and failure.

GRUNDRISSE DER PHYSIOLOGIE FÜR STUDIERENDE UND AERZTE.

Von Professor C. OPPENHEIMER (München) und Professor OTTO WEISS (Königsberg i.Pr.). Erster Teil. Biochemie, von C. OPPENHEIMER. Dritte Auflage. Leipzig: Georg Thieme. 1920. Pp. 522.

THIS volume on biochemistry is the first part of the Grundriss, to be followed by the second part on Biophysik, from the pen of Professor Weiss. The second edition, already set up in 1915, was not published until 1918, and the author, while thoroughly revising the whole work, has, in the new edition, striven to give a clear and comprehensive view of the bases of the modern physiology of the cell, and has in particular rewritten the chapters on colloids, cellular metabolism, permeability, and allied phenomena—e.g., gout and diabetes—to give the effort a more "practical outlook." The biochemistry of metabolism—e.g., the physiology of movement, physical part—which has not yet reached us—will deal with general nerve physiology, the physiology of movement, heart, blood-vessels, and circulation, movement of lymph, digestion, central nervous system, and sense organs, temperature, and heat formation.

In this part 268 pages—the systematic part—are given to the chemical constituents of the animal body, wherein is embodied a sufficient account of the acyclic and carbocyclic compounds, animal proteins, ferments, antigens, and antibodies. The substances of the fatty series are first dealt with, waxes, fats, lipoids, and carbohydrates are followed by benzene derivatives aromatic compounds, purins, then the general and special chemistry of proteins. The chapter on the ferments—i.e., enzymes—seems to us both terse and comprehensive. To hydrolytic ferments as a group the term hydrolases is applied, including esterases, carbohydrases, glucosidases, amidases, and proteases. The remainder of the text is called the analytical physiological part and deals with the chemical functions of the tissues and the organism, including the composition of living matter, foods, metabolism, intake and transport of foodstuffs including the chemical aspects of digestion, digestive secretions, absorption of blood, gaseous exchanges in lungs and tissues—secretion and excretion, regulation of functions including liver, blood-forming organs, internal secretions and hormones, and lastly, supporting tissues, nerves, and muscles.

For accessory food factors or vitamins, the term "nutramines," invented by Abderhalden, is used, and so is another of his terms—viz., "incretin," for internal secretion. In dealing with the secretion obtained from the pyloric mucous membrane, Bickel's name is mentioned, but not that of Edkins. Some interesting speculations are given (p. 386) as to the significance of so-called proteinogenic amines, including histamin, adrenalin, and tyramin, and their relation to endocrine glands. As the potential substances in internal secretions are chemical in nature, their general and special physiology is relatively fully dealt with.

The book is a well-balanced exposition of what the Germans regard as "bio-chemistry," the physiological significance of the chemical data being made to stand out significantly.

MILITARY SANITATION.

A Handbook for Soldiers. Third edition. By Colonel ROBERT J. BLACKHAM, C.B., C.M.G., C.I.E., D.S.O., &c. London: John Bale, Sons, and Danielsson, Ltd. 1920. With index. Pp. 140. 10s. 6d.

A BOOK on military sanitation which has reached a third edition is clearly satisfying a want. It is written for officers and non-commissioned officers of the Service generally, and can be carried in the tunic pocket. It is well adapted to teach those without a previous medical training the principles and practice of hygiene; their resulting knowledge will be very exact. The quoted opinions of great soldiers are impressive and arresting, but might be more numerous. Amongst books on military hygiene perhaps the most pleasing particular feature of this little work is that detailed schemes are put forward for regimental or orderly officers inspecting kitchens (p. 72) and sanitary areas (p. 90), telling them most helpfully, line by line, where the most probable neglects in sanitary precaution will manifest themselves, and how, therefore, they may be quickly discovered. In the next edition it might be well to develop this idea further and to suggest a routine for establishing the health administration of a battalion when first formed, dumped, for example, as battalions were in 1914, on Salisbury Plain, with possibly no one of experience to guide them. To this might be added a suggested routine for carrying on the sanitation of the battalion when it has been set going and only wants to be kept up to its level. It is noticeable that "ventilation" does not occur in the index, nor is it suggested in relation to the "protective measures" against influenza or pneumonia in the very interesting chart of infectious diseases with which the book ends. There is on p. 39 an encouraging account of how the army fitted a square peg in a square hole, and Colonel Blackham's directions for waterproofing uniform with lanoline will be found very helpful if we ever have war in Europe again. He gives a good account of boots, emphasises the valuelessness and positive dangers of flannelette, and, directing particular attention to the soldier's socks, insists he should have, or, as they say in the army, "be issued with," four pairs, one more than now allowed. The book is handy, readable, and well printed.

A MANUAL OF ELEMENTARY ZOOLOGY.

Third edition. By L. A. BORRADEALE, M.A., Lecturer in Zoology in the University of Cambridge. London: Henry Frowde and Hodder and Stoughton. 1920. Pp. xvii. + 616.

To have reached a third edition in these days of competition among text-books of zoology argues the possession of merits of a definite order. That the author is accurate in his statement of facts is, of course, satisfactory, but does not call for so much appreciative comment as in former years when types were less stereotyped. It would be difficult to make nowadays a real "howler" in the account of the anatomy of crayfish or frog, though in former years the late Professor Milnes Marshall remarked upon the "quite curious difficulty" of weathering rocks and quicksands when dealing with the most ordinary material of zoology.

Mr. Borradale, in producing even so restricted a work as this one, has had to grapple with whole libraries of zoology, and his problem in writing, as ours in reviewing, an elementary manual of zoology, must be mainly concerned with judgment and balance in selection. He is compelled to devote much space to some animals and to some views and to neglect others. For instance, he has said nothing at all about sponges. There would seem to be a fate in this. Two text-books, at any rate, are known to us of a more or less general applicability in which the same group is ignored. The writer may, however, be justified in neglecting a group the sterility of which has been emphasised by zoologists; sponges, appear to "lead to nowhere in particular."

Since this text-book is addressed mainly to medical students Mr. Borradale is wise in laying stress upon those animals and groups of animals which have a bearing upon medicine and surgery. Parasites are dealt with fully and in connexion with disease. There are also chapters, or at least sections, upon matters of wide interest, such as Mendelism, Natural Selection, Fertilisation, and so forth; in fact, we cannot accuse the author of any serious omissions in these departments. Indeed, if more had been stuffed in something would have had to give place, and it is not easy to see what could best have been spared from what is a manual and not a treatise.

DIABETIC DIETING AND COOKERY.

By P. J. CAMMIDGE, M.D. Lond. London: University of London Press, Ltd. 1920. Pp. 222. 10s. 6d.

PERHAPS the greatest advance that has been made of recent years in the treatment of disease is to be found in the case of diabetes. In this book of Dr. Cammidge's both the busy practitioner and the patient suffering from diabetes will find set out in a simple manner the details of the newer methods. A patient of ordinary education with the information here provided will be able to coöperate intelligently with the physician in carrying out those precise changes in diet with which present-day treatment so largely concerns itself. Should complete abstinence from food be prescribed for one, two, or three days he will understand the *raison d'être* of the prescription and be all the more eager to carry it out. Quantitative regulation of diet, at first so difficult to effect in ordinary life, becomes comparatively easy to a patient trained for a week or two in weighing out quantities and learning by experience the weight of average servings of the common articles of food in the manner here suggested. Two very useful chapters deal with diabetic cookery and cookery recipes. In the latter upwards of 200 recipes serve to afford variety to what in the past, in too many instances, has been a daily round of monotonous menus. We question the wisdom of including the chapter dealing with diabetic coma in a book intended to be placed in the hands of sufferers from diabetes, nor are we convinced that "every patient should know how to test his own urine for sugar and adjust his diet according to the results obtained." Apart from these objections we have nothing but praise for a volume which meets a long-felt need.

MEDICO-TROPICAL PRACTICE.

A Handbook for Medical Practitioners and Students. Second edition. By GILBERT E. BROOKE, M.A., D.P.H., Chief Health Officer, Straits Settlements Government Medical Service, &c. Revised throughout and rewritten. London: Charles Griffin and Co., Ltd. 1920. With 61 illustrations. Pp. 522. 18s.

THE author has changed the title of his book from *Tropical Medicine, Hygiene, and Parasitology* to that of *Medico-Tropical Practice*, a change which has only brevity in its favour. The first edition appeared in 1908 and had a deserved popularity. The present volume contains 37 chapters, with an appendix and an index. There are some useful illustrations, and as most of the text is up to date the information should prove of value to students and tropical practitioners. We note the adoption of *Loesha* as the generic name of the amebæ of man, but miss any reference to the recent work of Dobell and others on *Endolimax nana*, *Iodamoeba butschlii*, and *Dientamoeba fragilis*. This is unfortunate. Some of the old names are still retained for the flukes, such as *Opisthorchis*, which should now read *Clonorchis*, and *Cotyllogomimus* instead of *Heterophyes*.

No mention is made of Noguehi's work on spiro-nematæ in yellow fever, nor is the new antimony treatment for bilharziasis dealt with. Omissions such as these are unfortunate as regards the teaching of students and impair the value of the work as an up-to-date handbook. The incorporation in a future edition of such new work will make the book of real value to students and junior practitioners. Parts of it now are excellent.

JOURNALS.

Journal of Hygiene, Vol. XIX., No. 1. July, 1920. Edited by G. H. F. NUTTALL, F.R.S.—This issue contains interesting articles on bacteriological and hygienic subjects. The attention of pathologists is drawn by the editor to the Second International Congress of Comparative Pathology, to be held in Rome in April, 1921. Tetanus: Analysis of 1458 Cases which Occurred in Home Military Hospitals during the Years 1914-1918, by Sir David Bruce, K.C.B., F.R.S. This interesting and useful summary was dealt with in a leading article last week. Reference may here be made to one or two special points. Sir David Bruce shows, we think, quite clearly that the prophylactic use of serum was effective in cutting down both the incidence and the mortality of the disease, though he believes that thorough surgical treatment of wounds was of very great importance. The therapeutic use of serum was, however, disappointing, as was to be expected from the knowledge already gained before the outbreak of war. Professor Sherrington's work, which established the intrathecal route as the best for administration of the serum, is referred to. Anaphylactic shock occurred in 49 cases of tetanus treated with serum, with 12 deaths. Of these cases of shock, 17 were caused by intrathecal injections, 14 by intravenous, 9 by intramuscular, and 2 by subcutaneous. Anaphylactic shock was thus not a rare phenomenon.—A Study of the Serological Reactions of Meningococci and an Account of the Method of Preparation of Antimeningococcus Serum, by A. Stanley Griffith, M.D. The first part of this long article is devoted to an account of work on the separation of types of meningococci by means of the agglutination reaction. The author concludes that "Gordon's classification holds good if care is taken in the selection of strains for the production of type sera," but that "all the strains included in each type are not identical in their serological characters," and that "there is inter-relationship between the types." In the second part of the paper Dr. Griffith discusses the methods of preparing anti-meningococcal serum.—Carriage of Coliform Bacilli by the Oriental Hornet (*Tespa orientalis*, Fabr.), by P. A. Buxton, M.A., M.R.C.S. The author examined, by dissection and by plating on McConkey's medium, the gut contents of the large red oriental hornet which is common in Mesopotamia. The hornet is a foul feeder, and Dr. Buxton shows that of 64 examined 23 were carrying well-known types of intestinal bacteria.—On Defence Rupture and the Antagonistic Action of Salts, by C. Shearer, F.R.S.—Report of Experiments on the Cold Storage of Herrings Carried out at North Shields (June and July, 1919), by Ione H. Green. The author draws the following conclusions from the work described in this paper—that brine-freezing is more satisfactory than dry-freezing, and that ungutted frozen fish keep better than gutted ones. The need for the most elementary measures of cleanliness in the handling of fish is pointed out. At the present time apparently waste is common owing to the lack of proper organisation in the fishing industry.—An Inquiry concerning the State of Cleanliness of Empty Milk-churns, by R. H. Cumming and A. T. R. Mattick. It is shown in this investigation that the present inadequate methods of washing and cleansing churns is one cause of the loss of milk through souring in transit.—Suggestions for a New Criterion of a Positive Wassermann Reaction Based on an Analysis of 2334 Quantitative Tests, by C. H. Browning and E. L. Kennaway. The new criterion is "based upon a comparison of the amounts of complement giving complete lysis with any given serum, and with the negative control, respectively." The article will be read and studied by those who are occupied in carrying out the Wassermann reaction.—The Milk-supply of the City of Edinburgh, by A. Cunningham and B. A. Thorpe. The authors examined 40 samples of milk from the supply of the city of Edinburgh, and found that the bacterial content was of about the same order as that reported from other large cities. They recommend the redactase test for obtaining a rough idea of the numbers of bacteria present in milk.—The Wilson-Well-Felix Reaction in Typhus Fever, by W. James Wilson, M.D., D.Sc., D.P.H.—This article gives a valuable historical account of the reaction as diagnostic in typhus fever. The author suggests that the explanation of the occurrence of agglutinins to the proteus bacillus X19 is that in typhus fever a bacterium, which is a normal inhabitant of the human intestine, gives rise to agglutinins for itself and group agglutinins for numerous other organisms, especially X19 and X2 proteus bacilli.

Quarterly Journal of Microscopical Science. Edited by Sir RAY LAWRENCE, K.C.B., F.R.S., &c., with the cooperation of Professors HICKSON, F.R.S., GILBERT BOUENNE, F.R.S., J. GRAHAM KEER, F.R.S., and E. W. MACBRIDE, F.R.S. Vol. LXIV., Parts 2 and 3.—*Journal of the Royal Microscopical Society*. Edited by G. SINGER, M.D., with the assistance of Professor J. ARTHUR THOMSON, LL.D., Messrs. HENRY I. G. RAWLINS, Dr. RENDLE, F.R.S., and Dr. R. ST. JOHN BROOKS, M.A., M.D. 1919 Part 4; 1920, Part 1.

The two parts of the *Quarterly Journal of Microscopical Science* noticed here contain between them seven memoirs, all of which are of importance.—In a memoir on "Determination of Age in Honey Bees," Mrs. Goodrich states that these insects die not only from various bee diseases or from violence, but perish worn out by work and old age. It would appear that in the height of the honey-flow worker bees literally work themselves to death about six weeks after hatching. Mrs. Goodrich points out that such bees, not suffering from any bee disease, can not only be recognised by their worn appearance and frayed wings, but an examination of the brain cells establishes their senile condition. Figures of these cells in freshly hatched insects and in those of greater age show obvious degenerative changes in the latter. From the economic point of view it is clearly important to be able to distinguish between those insects which are suffering from a possible unknown bee disease and those which are merely senescent and dying.—A second paper of great interest, by Professor Hickson, concerns the rediscovery of *Protohydra leuckartii* in this country. Originally—and as long ago as 1865—Professor Greeff found this simple organism—which is practically a hydra without tentacles—at Ostend, near which town it was again found in 1892. It has now cropped up in tidal marshes near Southampton, and in a postscript Professor Hickson announces that further specimens have been found near Plymouth. He details such facts as he has noted from the examination of abundant material regularly supplied to him at various periods of the year; hitherto he has been unable to find any trace of any medusa stage.—As to the other communications in the journal Professor Gemmill continues his well-known studies among the Echinodermata in a memoir upon the development of *Crossaster papposus*, while Mr. Bronte Gatenby continues his series of articles on the Cytoplasmic Inclusions of the Germ Cells.—The *Journal of the Royal Microscopical Society* contains, as usual, a few memoirs read to the Society, and a mass of abstracts of current research on both animals and plants. The latter, as has been customary in recent years, bulks most largely, and is of the greatest use to workers in all departments of biology. It forms a useful supplement to the lists of titles of papers published annually in the Zoological Record, and its value is enhanced by a few woodcuts. It includes a good summary, with three illustrations, of the recent well-known investigations on the "spiroptera cancer" in rats, with special reference to the part played by the cockroach.

British Journal of Experimental Pathology. Vol. I., No. 3. June, 1920. Editors: C. H. BROWNING, F. FILDES, W. E. GYE, E. L. KENNAWAY, E. H. KETTLE, J. MCINTOSH, J. A. MURRAY, W. J. TULLOCH, C. M. WILSON. London: H. K. Lewis and Co., Ltd. Price 7s. 6d., annual subscription £2.—The third number of this journal maintains the high standard of previous numbers. A leaflet is enclosed containing a series of summaries of all the papers published up to the present in the journal. These summaries are concise, and are printed in small type, occupying just enough space to be convenient for a card-index system. This novel and useful innovation is apparently to be continued in subsequent issues. The Antigenic Properties of *B. psittacosis*, by H. M. Perry. The organism was isolated from a grey touracou native to South Africa. The investigation was undertaken to establish the identity of the organism. It was found that the antigenic properties of the bacillus are identical with those of the "mutton" type of *B. aertrycke*.—A Method for the Estimation of Urea by Soy-Bean, by E. L. Kennaway. The method detailed is simple, gives accurate results, and should therefore be of great practical importance in the clinical laboratory. Amounts of 1 mg. of urea can be estimated by the method with an accuracy of 97 per cent.—The Value of the Vital-red Method as a Clinical Means for the Estimation of the Volume of Blood, by D. T. Harris. The method of estimating the volume of blood by means of the innocuous dyes depends upon the introduction into the vascular system of a known weight of the dye, and then, after allowing time for the dye to become uniformly distributed and before passage of the dye from the vessels begins, to take a sample of blood and estimate the concentration of the dye therein. Vital-red is, from the standpoint of safety and simplicity, the most useful substance for the determination of the blood volume of man. Its reliability has been tested by Dr. Harris, who finds out that, owing to the rapidity with which vital-red leaves the vessels, the method gives results which are too high. The optimum interval for taking a blood sample is two to two and a half minutes. The correction-factor for cats and dogs for a four-minute interval is 0.78, for a one-minute sample 0.9. For man the correction-factor probably lies between 0.8 and 0.9.—The Etiology of Influenza, by P. Fildes and J. McIntosh. This article completes the review of the subject begun in the previous number. The authors weigh the evidence for and against the view that influenza is caused by a filterable virus, and conclude that the balance is against this view. Finally, the conclusion reached is favourable to the view that *B. influenza* is the specific microbe agent in influenza.

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THE LANCET.

LONDON: SATURDAY, SEPTEMBER 11, 1920.

The Physician in the War.

UNDOUBTEDLY the surgeon had the time of his life during the years 1914 to 1919. He then obtained more operative practice in a few short months than would otherwise have fallen to his lot in a lifetime. He enjoyed skilled co-operation, with abundant opportunity of mutual help and counsel. In view of the circumstances no leave had to be wrested from relatives for performing biopsies or autopsies. The services of bacteriologist, registrar, and statistician were at his elbow. Surgeons from all parts of the country and from many civilised lands got to know each other as friends and professional colleagues, with lasting advantage to the fraternity of surgery. No wonder surgery made great advances. The time of the physician came later, and never so completely. The war needed him just as much, but at the outset no one in authority was clear-sighted enough to see this, although it is now obvious that the early recognition of epidemic disease was a matter on which the lives of thousands and tens of thousands might hang. The official stage appeared complete with the trilogy of surgeon, sanitarian, and bacteriologist, and although the diagnosis of all known and some unknown infectious diseases was in reality a task for the highest medical ability, it was not until the campaign was half over that the consulting physician began to take his due share in affairs on the field of battle and behind the lines. What this share was is attractively portrayed in the first Lumein lecture, which we print on another page.

War conditions made the physician's work essentially different from that of civil practice. In the first place the opportunities of group study were almost boundless. Not only infectious diseases but maladies of all kinds were notified, and during the latter part of the campaign facilities were such that the physician could take his choice of a syndrome which interested him and work it out in various areas of the vast field of hostilities. In spite of the great relative improvement in hygienic conditions since the Crimean war, of which sanitarians never weary of telling us, and the remarkably small proportion of disease during the whole campaign, still, as Sir JOHN ROSE BRADFORD reminds us, the actual numbers of sick were far larger than those of wounded. Interest was not limited to the diseases generally recognised in association with campaigning. Typhoid, cerebro-spinal fever, trench fever, dysentery, and the like, had their special attraction to clinician and epidemiologist, but an impetus was also given to the study of such everyday disorders as acute rheumatism and lobar pneumonia. Sir J. ROSE BRADFORD remarks on the rarity of acute rheumatism in the field. With an unprecedented population of young males and a very large population of young females, exposed, as never before, to the rigours of wet and cold, this immunity would have been astounding had not Sir ARTHUR NEWSHOLME, when medical officer at Brighton, prepared us to associate acute rheumatism with dryness and warm spells of weather. The war-time physician has established beyond a doubt

this observation of the peace-time sanitarian. During his whole service in France Sir J. ROSE BRADFORD saw no death from acute rheumatism nor any case of rheumatic hyperpyrexia. Acute infective endocarditis, when it occurred, developed, as a rule, on healthy valves, and only rarely as an incident of gunshot sepsis. So much for rheumatism. The war also gave Dr. ADOLPHE ABRAHAM'S his opportunity of studying lobar pneumonia in a large population of recruits at Aldershot. His analysis on p. 543 of the frequency of symptoms and complications has the special value arising from uniform observation, for the cases all came under his own eye. He had, unfortunately, no opportunity of making an exhaustive survey of the troops in order to define the relation between constitution and susceptibility—he was not even able to obtain, when he wanted them, the figures of the monthly strength in the Command—but he did adduce the striking fact that 62 per cent. of his total cases fell sick of pneumonia within 12 days of joining up. And this was before the influenza pandemic began. The total mortality of his 558 consecutive cases was just under 11 per cent., being markedly less than the 30 per cent. of the Johns Hopkins Hospital and the 17 per cent. of the Middlesex Hospital (1880-89), both observed on about the same number of cases, but greatly in excess of the 3·6 per cent. (quoted by Osler) among 40,000 picked men in the German army. Double pneumonia had a threefold mortality—namely 29 per cent. Herpes labialis was reinstated in its position as *signum bonum*—occurring, indeed, only in 17 per cent. of the whole, but heralding a mortality in these of little more than 4 per cent. The seventh day proved to be far the most popular day for the crisis, which is more credible than Dr. ABRAHAM'S singular confirmation of the old legend that the critical fall affects the odd day in general. Empyema was unduly frequent in the Aldershot cases, even before the influenzal epidemic which stamped it as a common and very fatal complication. Dr. ABRAHAM'S notes the large proportion of cases in which simple aspiration was sufficient to clear up the effusion.

Over and above the enrichment of the differential study of disease afforded by the circumstances of war, Sir J. ROSE BRADFORD'S experience gave him a further opportunity of great interest, that of comparing the incidence and mortality of disease in the various nations represented among the British forces. The actual attack-rate of tuberculosis was much the same among English, Canadian, and Australian contingents, whilst among the New Zealanders it was much higher. On the other hand, the resistance to tubercle displayed by the men of home origin was vastly greater than that of the Maories or of the natives of South Africa and the West Indies, men from the Dominions coming intermediately between the two extremes. No single instance of chronic or quiescent tubercle was found among an extensive series of autopsies on men of native races, although in over half the total find of pulmonary tuberculosis the lesion was quiescent. Racial variations in immunity, whatever their explanation may be, are of great interest. Obviously the material for comparison of the infectivity and virulence of disease among men of various races should be available in abundance, and the time should be approaching when analysis and classification of this experience will be available. The Lumein lectures will make a fitting introduction to this important chapter in the medical history of the war.

ANATOMICAL TERMINOLOGY.

Anatomical Terminology.

ANATOMY is a subject which extends far beyond the horizon of the medical student and the ordinary usage of the great majority of practitioners of medicine, so that there is nothing surprising in the fact that many of its terms have a significance for the follower of the science which they do not possess for those who only concern themselves with descriptive human anatomy. For these last with descriptive "labels," sound and fury they are often merely the evil inventions of the signifying little, the evil inventions of the malevolence of terminologists. But let it be remembered that anatomy is a living science apart from medicine, the technical language of which includes its nomenclature, and it becomes evident that this language must also be living, and must come under the laws which apparently govern all living things. It is comparable with any national tongue, subject-like that tongue—to evolution under changing circumstances, and it will only reach its final form when it becomes a dead language. Philologists would be puzzled to assign reasons above criticism for the decay of some words in a language, and for the decay of others which would appear to be suitable for retention, yet such happenings are but the common results and evidence of the gradual evolution of a tongue, and similar changes have taken place and are taking place in anatomical nomenclature. Moreover, it seems that this natural evolution cannot be changed, hurried, or replaced by artificial means. The factors which mould languages in different ways under different suns may be elusive, but they are none the less effective in their action. Both these effective agents are traceable in the different languages of anatomy. Those who are acquainted with the old literature of the subject know of many examples of descriptive labels which, at first in common use, have undergone different changes in different countries as the study became less international and more in keeping with national modes of thought. We have, in the Basle *Nomina Anatomica* (1895), a serious attempt to impose an artificial formal terminology on the world of anatomy, as if the Tower of Babel were no longer worthy of consideration. Already those who have taken it up are suggesting various changes in it, and the suggestions coincide in their tendencies. This is not surprising, and is only on a small scale what we should expect if an attempt were made to put Volapuk in place as a substitute for all the tongues spoken to-day.

It would seem probable that the B.N.A. in its present form will fail to hold its ground, in spite of its capture of some literary strongholds, even as BARCLAY'S proposals failed a century ago. No doubt certain of the terms will survive, as some of BARCLAY'S have survived, but this will be on account of their applicability and English fitness from the evolutionary standpoint, not because they are at present on the Basle list. In our last issue Dr. CUTBURN MORTON summed up his efforts in the cause of "simplification" of anatomical language in an interesting and entertaining paper. Once more it seems probable that this scheme will yield a few additional or alternative terms to the literature, but its ultimate fate may be that of every attempt to force the hand and influence of time. Dr. MORTON brings together, and endeavours to meet, many of the complaints urged against the ana-

tomical language of the schools. These complaints and accusations crop up from time to time, and it may be of interest to consider some of them. It is said frequently that much confusion exists between the terminologies, and valiant efforts are made to cure this confusion by adding to it; or the confusion is referred to the use (or existence) of several names for one thing. But surely one of the signs of vitality and richness in a tongue is the possession of synonyms and words with progressive differences of meaning, and the occurrence of different terms in anatomical nomenclature is usually an indication of increasing and widening knowledge, and a necessary accompaniment of the effort towards perfection which is the keynote of evolution. A language which does not change with time, and increase in volume, is dead. Where several terms exist for one thing, one of them tends from its fitness to be used, and the others become secondary and, in some cases, disappear. Again, it is urged that the student is overcome by the difficulty of the labels that he must acquire. Teachers of the experience deny this altogether, and hold that he has no more relative difficulty in acquiring the terms of anatomy than in learning the technical words used in the half-dozen games which he plays. It may be pointed out, moreover, that successful teachers of anatomy are not formal in their methods, for pedagogy and formality are closely associated, and neither makes for inspiring teaching.

Confusion in the use of terms of position is another evil laid to the charge of the present nomenclature, and laid there unjustly, for in practice no confusion arises when the terms are used by anatomists, and if confusion is present in the student's mind it must be referred to want of instruction in his early days, not to inherent defect in the system of nomenclature. All who teach changing classes must have seen the limitations imposed on students by their ignorance of dead tongues which still live in their widespread influence, and when Dr. MORTON, for instance, describes the student as overcome by the complexity of the labels to be remembered, the blame may really lie, not on the anatomical terms, but on the faulty education of the student which does not enable him to make use of the information furnished by those terms. It would be as reasonable to refer the misuse of words by the illiterate to shortcomings in the English language itself. Most of the forms found in anatomical works of to-day are relics of that time when Latin was the common tongue in which all learned books were written. Latin and Greek words of this sort have been adopted into English; we talk of the biceps, the extensors, the larynx, the trachea, and so on, and these names seem to us almost as used as nouns, whereas they started in life as adjectives. Greek and Latin terms which have come through the evolutionary mill are becoming anglicised, and it would probably be impossible to uproot them even if it were desirable to do so. But the use of Latin to-day is on a different footing. It may have international value, although this is probably over-estimated; those who are in the habit of reading foreign literature have no difficulty in fitting the English equivalent to the foreign term, and it seems unnecessary to introduce a third class to stand between them.

Respiration and Fitness.

THE application of physiological knowledge to practical purposes has probably nowhere been more useful than with regard to the principles of respiration; prolonged storage of cereals has been rendered possible by conditions which make respiration impossible for the destructive weevil; caisson disease has ceased to be an unpreventable accident since the principles underlying the absorption of gases by the blood were employed to illuminate its mystery; while for the construction of mine rescue apparatus a grasp of these principles is fundamental. Nothing creates a stronger appeal to humanity than news that owing to a colliery explosion a number of men are incarcerated in the workings, dependent on the immediate exertions of others for their release. Volunteers are always ready to risk death in the attempt, and many noble lives have thus been lost. Science teaches that no attempt should be made unless the rescuers (1) are suitably protected against the dangers they must face, dangers associated with the poisonous atmosphere they must enter; and (2) are physically fit to undertake the endeavour. A Committee appointed by the Department of Scientific and Industrial Research to consider mine rescue apparatus in a first report¹ issued in 1918 laid down certain stringent requirements based on physiological principles. This Committee has continued its work, and in a second report² recently issued shows how these requirements can be fulfilled. The report deals in succession with the two points mentioned above. The various types of rescue apparatus are discussed, and the compressed oxygen apparatus, designed by Dr. HENRY BRIGGS, a member of the Committee, is carefully described. The underlying principles are the same as in all other types; oxygen is supplied to the wearer from a cylinder he carries, and the carbon dioxide he exhales is absorbed by caustic potash. The apparatus cannot be explained with justice without entering into technical details of construction, and the reader should refer to the report itself to appreciate the advantages which belong to the BRIGGS apparatus; it is enough here to say that it reflects credit on its designer and fulfils the necessary requirements.

Not the least interesting part of the report is that dealing with physical fitness. Here we trace the scientific mind of Dr. J. S. HALDANE, a member of the Committee, speaking on a subject of which he is the accepted master. A remarkably clear and concise summary is given of the processes of respiration; the way in which the pressure of carbon dioxide in the blood acts independently of the oxygen pressure is emphasised; and attention is drawn to the different and independent action of oxygen-want and carbon dioxide excess in stimulating respiration. Evidence is quoted (a) to show that while in an ordinary person diffusion of gases through the pulmonary epithelium will explain the access of oxygen to the blood, "the physical laws of diffusion do not explain the phenomena of blood-oxygenation when the subject is making a special demand on oxygen-supply" either because he is doing physical work or because, as airman or mountaineer, he is breathing rarefied air; and (b) in support of "the view that the epithelium

is not a mere porous diaphragm, but that the living cells from which it is built possess the faculty—which they exercise at need—of secreting oxygen from the air and of handing it forward at enhanced pressure to the blood." An interesting and new point now emerged—men in good physical training, such as practical miners, were found to possess this power of secreting oxygen from the air.

"Hence, in men who are accustomed to muscular exertion, there is no deficiency of oxygen in the arterial blood when ordinary air is breathed until exertion is pushed to the utmost. For this reason they also receive no benefit from breathing air enriched with oxygen. On the other hand, in men who are not accustomed to muscular exertion, the epithelium fails to pass in the proper supply of oxygen unless the diffusion pressure of oxygen is raised in the alveolar air by the enriched inspired air. Hence these persons benefit by enrichment of the air with oxygen. It is evident that the physiological response of a man to oxygen during muscular exertion furnishes an interesting test of whether or not he is in good training as regards his lungs. Physiological fitness depends not only on the lungs, but also on ready adaptation of the circulation, muscles, nervous system, &c., to whatever exertions are required. In ordinary cases, however, lung fitness is an accompaniment of general physical fitness, and may therefore be taken as a measure of it."

We have quoted Dr. HALDANE'S ingenious reasoning at some length, as it is apparently at variance with the views of Mr. J. BANCROFT, given in his own words in our issue of last week. Mr. BANCROFT, it will be remembered, supported his thesis by exact and quite heroic experiment on himself; but we do not know whether Dr. HALDANE would admit that he was in good physical training at the time of his sojourn in the glass-cell. Based upon the reasoning quoted above, Dr. HALDANE has evolved a method of testing physical fitness which has been used for airmen, and should also be applicable to members of a mine rescue brigade. The method, described in an appendix by Dr. BRIGGS, should be submitted to further tests, for if its value be confirmed it will be useful in other fields; for example, to test the capacity of athletes to endure the strain of strenuous and prolonged exertion, say for a contested boat-race. A further instance of the practical value of the research carried out is to be found in an estimate, contained in the report, of the most energy-saving rate of walking—a matter of importance to the economical movement of infantry. "Like a steamer or an airship, a man has a most economical speed at which he goes furthest per litre of oxygen or per pound of food." The investigation revealed that when carrying a load of 43 lb., the weight of a rescue apparatus, the most economical speed for certain subjects was 3 miles an hour and for others 4 miles; the subjects, however, were walking along an even surface, and "under the conditions obtaining in the mine we judge that rate to be about 2½ miles per hour when travelling a flat road and carrying a rescue apparatus." The speed fixed may be compared with that stated by AMAR,³ who places the most economical rate of walking along a flat surface at 28 miles per hour, but considers that if a weight of about 45 lb. is being carried the pace should be slowed down to 26 miles. It can now be gathered that the research published in this report is of first rate importance; the work is still being continued, and further valuable results may be expected.

¹ THE LANCET, 1918, II, 361.

² Second Report of the Mines Rescue Apparatus Committee, Department of Scientific and Industrial Research, 1920. H.M. Stationery Office. Pp. 60, 2s.

³ AMAR, Jules: The Physiology of Industrial Organisms. Translated by M. Mill. Library Press, London, 1919.

Annotations.

"Ne quid nimis."

NYSTAGMUS AND ILLUMINATION.

THE getting of coal from deep measures, upon which, as is being so forcibly impressed upon us this month, modern life depends, was rendered possible by Newcomen's steam engine invented in 1712 for pumping out water-logged mines. Then Watt improved the invention for use in mines and elsewhere. Forthwith the working of deep coal measures became practical, and industrial expansion a possibility; but all was for a moment checked by danger to life and limb from explosions. Another invention followed, the Davy lamp; the public owe it much, for through its use coal has been got which otherwise must have been left in situ. But for the miner this lamp has been a mixed blessing. It has carried him deeper and deeper into the earth into places fraught with danger; it condemned him to asthma until ventilation came to his rescue; it has limited his illumination and afflicted him with nystagmus. This latter disease has received considerable attention of late years. An excellent paper on its economic aspect was read at the Brussels Congress of the Royal Institute of Public Health by Dr. T. L. Llewellyn, an expert authority on the subject to whom the miner owes much for his steady insistence on bringing the facts forward. This paper appeared in the *Colliery Guardian* of June 4th, and has now been made accessible to medical readers in the current number of the *Journal of State Medicine*. The prevalence and distribution of the disorder have become known owing to its inclusion among diseases for which compensation must be paid. Its prevalence discloses that 6000 miners in England and Wales are disabled on its account each year; its distribution establishes that among coal-miners only coal-getters are affected, and only coal-getters in mines where safety lamps are used. The disease is not confined to the United Kingdom, but prevails among miners in Germany, Belgium, and the North of France, whereas in the United States, notwithstanding inquiry, the disease does not appear to be prevalent.

The symptoms of the disease are now accepted; the distressing psychology they give rise to is becoming recognised, but the pathology remains obscure. Fortunately the distribution of cases establishes clearly the relation the disease bears to inadequate illumination and points to the means necessary for prevention. The difficulty with the safety lamp is that the gauze around the light cuts off many rays, and the illumination becomes less and less as work proceeds and coal-dust collects on and blocks up the mesh of the gauze. Dr. Llewellyn, who has measured the light in mines, calculates that "the amount of light acting on the retina may be so small an illumination as only 0.0018, or roughly 1/2000th part of a foot-candle. . . . Up to 1914 over 90 per cent. of the safety lamps in use gave less than 0.5 c.p. at the coal face." A standard illumination of 0.1 foot-candle over the whole working area is called for, and illustrations are given showing the advantages gained through whitewashing and stonedusting the roads. The cost to the mining industry in compensation paid and loss of coal output is estimated at over 1 million pounds a year; nor does the harm stop there, since the loss of coal affects other industries, and the direct loss to the nation approximates at 1d. per ton of coal raised.

At the same Congress at which this valuable paper was presented Dr. F. Shuflebotham, another well-known writer on this disease, when putting forward a case for the science of industrial medicine, claimed that although miners' nystagmus was the commonest occupational disease known to medical science, it was only one of the several occupational diseases affecting miners, and only one of many disabling conditions at

present hardly recognised by the medical profession as affecting the general working population. Dr. Llewellyn states that steps are being taken to discover and introduce more effective and equally safe illumination for fiery mines. Necessity is as much the mother of invention now as when Newcomen invented the steam pump. Necessity is surely present in this case, and we hope that in the near future the problem will be solved. Then miners' nystagmus will disappear, as miners' asthma has already done. Relief from disease and danger may, as Professor E. L. Collis suggested last week in a letter to the *Times*, go hand in hand with a cessation of the fretfulness that threatens to paralyse industry.

WORK OF THE GOVERNMENT LABORATORY.

THERE has evidently been heavy pressure upon the staff of the Government Laboratory during the year ended March 31st, 1920, judging from the details given in the annual report just issued and signed by Sir James J. Dobbie, the principal. The returns constitute, in fact, a record. The total number of samples examined in the course of the year, including those dealt with at the outport chemical stations, was 368,898, as compared with 289,180 in the preceding year, an increase of nearly 80,000. The examinations represent therefore the passing through the laboratories and stations of over 1000 samples a day. The number examined at the Central Laboratory alone (Clement's Inn) amounted to 199,388, against 184,392, an increase of approximately 15,000. As is stated in the Appendix, the principal increases are due to goods liable to customs duty, such as wines, sugar, tea, and cocoa preparations, and the volume of work here seems to be a sure indication of the revival of trade after the return to peace conditions. Conversely, large decreases are shown in the samples submitted by such Government Departments as the Admiralty, Air Ministry, and the War Department. The report shows a deterioration in the quality of tea, since of 16,562 samples examined 6695 were reported against, or 40 per cent. of those examined. It is interesting to note that tea is examined at the port of entry by tea inspectors, and doubtful samples requiring a more complete examination than is possible by these inspectors, are sent to the Central Laboratory. The increase (representing a much larger return than in pre-war times) is attributed again to a revival of trade, the tea imported last year amounting to over 500 million pounds, as compared with about 370 millions in regard to the sale of alcoholic drinks may have some bearing upon this increase in tea consumption. By far the greater part of the samples rejected was owing to the presence, it is stated, of foreign matter accidentally swept up with the tea, and not to intentional adulteration. On the whole, therefore, the tea supplies were satisfactory, and indeed, considering the difficulties of the situation, the imported food commodities in general approached quite a good standard. Passing to the control exercised by the Government Laboratory over the work of the public analysts of the country under the Sale of Food and Drugs Acts, in the majority of referred cases (121 samples in all) the analyst's conclusions were upheld. The most important cases were as follows:—

Butter.—One sample contained foreign fat and one excess of water, as alleged by the public analyst.

Vinegar.—Both samples consisted of artificial vinegar, as alleged.

Cream of tartar.—The results agreed with those of the public analyst, who had found an excessive quantity of lead in the samples.

Beer.—The samples were referred by magistrates in connexion with proceedings under the Beer (Prices and Description) Order, 1919. In one case the original gravity differed from that found by the public analyst. In the remaining seven cases there was no information as to the finding of the public analyst.

Whisky and gin.—The point in dispute in the case of all the samples was the alcoholic strength; but it is not known whether or not the results were in agreement with those of the public analyst.

in the case of ginger alleged to contain spent ginger; the results did not agree with those of the public analyst.

In the case of canned peas alleged to contain copper, camphorated oil alleged to be deficient in camphor, mustard alleged to contain foreign starch, and bicarbonate of soda alleged to contain arsenic, the results agreed with those found by the public analyst.

In the 89 cases of milk samples in which certificates were issued the charges were as follows: in 26 cases, added water; 45, abstraction of fat; 6, added water and abstraction of fat; 2, presence of preservatives; and 10, presence of dirt. In 7 cases the results were not in agreement with those of the public analyst.

The smooth working of these Acts must have been much disturbed through the period of the war, inasmuch as regulations varied from time to time in regard to the constitutional requirements of certain foods, in accordance with the regulations issued by the Food Control Board. But the pleasing indications of this report are that we are steadily approaching normal conditions again in regard to the "nature, substance, and quality demanded" of the commodities concerned.

ACUTE DIFFUSE PERITONITIS.

In a recent issue of the *Journal of the Royal Army Medical Corps* Major Basil Hughes, R.A.M.C., (T.F.), describes a treatment for acute diffuse peritonitis which in his hands has saved 20 out of 21 serious cases. The peritoneum left to itself can deal with infection if not too massive, but it is hampered by distension of the intestine which restricts its blood-supply, while vomiting reduces the fluid available to form curative exudations. Major Hughes relieves the condition by whatever operation is required, with as little disturbance as possible to the peritoneum and a minimum of drainage. The subsequent course of the patients is almost regular, and they do not have distended intestines. Subcutaneous saline, 10 pints in 24 hours, is given for two days, and is then reduced to five pints until the vomiting, which has gradually been becoming less frequent and clearer in colour, ceases on the fourth or fifth day. Morphine, $\frac{1}{4}$ gr. every eight hours, and atropine, $\frac{1}{16}$ gr. every 12 hours, for the first three days, have "splinted" the intestine. Copious drinks of water containing sodium bicarbonate and citrate, given from the beginning to wash out the stomach and allay thirst, have secured by the third day free diuresis. Flatus is passed on the third, a foul stool probably on the fourth day. Glucose is given all the time per rectum. When vomiting ceases food is given very gradually by the mouth. Castor oil on the tenth day, and after that diet may be cautiously increased. Illustrative details are given in the article.

A PIONEER IN SPIROMETRY.

Spirometry, or the measurement of vital capacity, has gone through many vicissitudes since its introduction at Brompton Hospital by Dr. John Hutchinson in the early part of last century. Professor G. Dreyer dedicates his recent exact study¹ of the use of this measurement in assessing physical fitness to the memory of this Dr. Hutchinson, of whom the following biographical details are available. John Hutchinson was the only son of James Hutchinson, of Ryton, near Newcastle-on-Tyne. He was born in 1811 and received the more important part of his education at University College, London, then recently established to meet the needs of students debarred by theological tests from attending the older universities. Sir Charles Bell had been teaching anatomy in London since 1806, and his studies of the nervous system and its relation to respiratory movement resulted in his appointment as professor of physiology at the College. Dr. Dionysius Lardner, the versatile scientific writer and encyclopaedist, being professor in natural philosophy and astronomy. These were John Hutchinson's teachers. He was not only a hard-working student, but soon became a teacher, lecturing first at the various metropolitan institutions and later in his native town. He was accustomed to visit the coal mines

and to study the common causes of accident. He was elected M.R.C.S. in 1836, and undertook work at the Southampton Dispensary, Leigh-street, London, but his interests centred in scientific rather than clinical medicine. He made numerous experiments on the conducting powers, dryness, and resistance to the progress of fire of materials used in building houses, and published a work on the subject in 1843. In 1842 he was elected a Fellow of the newly established Statistical Society. His knowledge of coal gases led him to adapt the principle of the gasometer to measure the quantity of gases used in respiration. He made observations on nearly 4000 people, and tabulated the results according to height. He also used a mercurial gauge to measure the inspiratory and expiratory pressure, and tabulated the results according to professional or industrial occupation. He communicated papers embodying all these tables to the Society of Arts and to the *Quarterly Journal of the Statistical Society of London* in 1844, publishing his results later in a booklet entitled "The Spirometer" (1852). After his appointment to the position of assistant physician to the Brompton Hospital he began to measure the vital capacity of the patients suffering from chest trouble, and urged the general use of the spirometer in the detection of early or threatened phthisis. He was awarded the degree of M.D. by the University of Giessen in 1846. He communicated a more extended description of his studies in respiration to the Medico-Chirurgical Society of London in 1847, which was translated into German and published as a separate pamphlet in 1849. His other contributions included papers on heat, malaria, and ventilation to the *Journal of Public Health* (1849) and an article on the thorax for Todd's *Encyclopedia of Anatomy and Physiology*. He gave valuable evidence before a Select Committee of the House of Lords on the Prevention of Accidents in Coal Mines. He must have been a versatile man, for we read: "He was also gifted with an exquisite ear for music; his execution on the violin was masterly. He had a great ability as a draughtsman. He sculptured admirably in bas-relief and painted in oils." His restless spirit was constantly searching for new outlets. Soon after the discovery in 1851 of gold deposits in Australia he left England and began to make extensive collections of various gold-bearing rocks which he intended should become the property of the British Museum, but for some unknown cause they found some other destination. Of his career in Victoria for the next eight years nothing is known, and it does not appear that he made any further contribution to science. In 1861 he travelled to the Fiji Islands, dying there in July of that year.

"APPARENTLY DEAD."

This is the title of an interesting note by Mr. W. G. Spencer in the September issue of *Medical Science*. He cites a case described¹ by E. Rantenberg which would have been buried alive, had it not chanced that the coffin was reopened for purposes of identification. The woman had been reduced to the state of a hibernating animal by an overdose of morphia and by cold. The doctor who examined her in the mortuary applied only one special test, that of dropping sealing-wax on the skin. He made no note of the state of the pupils, which were subsequently found contracted. The details are as follows:—

On Oct. 27th, 1919, a hospital nurse, aged 23, bought from an apothecary in Charlottenburg for 20 marks 50 c.m. of a 3·5 per cent. solution of morphia, and 10 powders each containing 0·5 g. of veronal. She then went into the Grünewald, and about 4 p.m. swallowed about 1·7 g. of morphia and 5 g. of veronal. She wandered about as in a dream until she lost consciousness. The weather was cold, the temperature during the night being 1·3° C., and wet.

When she was found the next day, she was assumed to be dead and was taken to a mortuary, where the medical officer of the district examined her. The body had a deathly pallor; of the heart sounds, of pulse, of respiratory movement, of there was an absence of pulse, of respiratory movement, of the heart sounds, and of all reflexes. There was partial

¹ The Assessment of Physical Fitness. Cassell and Co. 1920. 10s.

¹ Ein bemerkenswerter Fall von Scheintod. Deutsche med. Wchnschr., 1919, 45, 1277.

stiffness of the trunk and limbs, and it was assumed that rigor mortis was as yet incomplete. There was no reaction to sealing-wax dropped on the skin. There is no mention of the state of the pupils. After the examination, the body was put in a coffin, still in the wet clothes. Fourteen hours later, on October 29th, the coffin was reopened in order that a lawyer might identify the body. The undertaker's men then noted that the cheeks were coloured blue and that there was a slight movement of the head. The same medical officer was again called and now heard faint heart sounds, but there was still an absence of a pulse and of respiratory movement. The patient was then moved to a hospital, when at 10 A.M. on the 29th—i.e. 42 hours after the poison had been swallowed—it was found that the trunk and limbs were partially stiff, that she was unconscious, and that there was no reaction to stimuli. The double heart sound could be heard over the sternum, the heart beating 30-40 a minute; signs of breathing and of a pulse were absent. Both pupils were markedly contracted. The skin and lips were deadely pale, but the cheeks were bluish (*leicht cyanotisch*). The stomach wash contained morphine; the urine drawn off from the bladder, beside albumin and casts, also contained a small quantity of morphine. Under active treatment for morphine poisoning the stiffness of the limbs began to pass off in two hours; consciousness began to be regained on the 30th. On Nov. 3rd the patient was convalescent and the urine free from albumin. No pneumonia or other complication supervened.

Mr. Spencer aptly quotes Marshall Hall's saying that "hibernation is, in every respect, but the parallel of ordinary sleep, varying only in force and duration."

NOCARDIASIS CUTIS RESEMBLING SPOROTRICHOSIS.

Dr. William H. Guy, of Pittsburgh, reports¹ a case which clinically resembled sporotrichosis, of which over 200 proved cases have been recorded since Schenck published his paper in 1898 on Refractory Subcutaneous Abscesses caused by a Fungus possibly related to the Sporotricha.

The patient was a coal-miner, aged 51, who presented a number of inflammatory nodules and indurated ulcers extending from the base of the left thumb to a point slightly above the bend of the elbow. On inoculation of various culture-media with the contents of one of the unbroken lesions several greyish-white pinhead-sized colonies appeared, which were found to consist of a mass of tangled threads bearing small granules. The organism was therefore identified with that which was originally isolated by Nocard from the superficial abscesses of cattle suffering from farcy. When first seen the patient was diagnosed as a case of sporotrichosis and was given a saturated solution of iodide of potassium. Apart from simple protective dressings, nothing else was done, and uninterrupted recovery took place.

A review of the recent literature on nocardiasis is appended, including the paper by Dr. J. B. Christopherson and Major R. G. Archibald in THE LANCET² on primary nocardiasis of the lacrimal gland.

VETERINARY SURGEON AS MEAT INSPECTOR.

THE want of a proper and uniform system of meat inspection in this country is being increasingly felt, while little is being done to select for the position of meat inspector the man most likely to be fitted for it—namely, the veterinary surgeon. His collegiate training includes both a special course and a special examination in meat inspection, and no one knows better the condition and appearance of the organs of animals in health and disease. The matter came before the largely attended representative meeting of the members of the Royal, Southern, and South-Eastern Counties Veterinary Medical Societies, held in London last week, when Mr. James Hayhurst, superintendent and veterinary inspector of the Metropolitan Cattle Market, Islington, read a paper on "The Duties of a Veterinary Meat Inspector," in which he particularly emphasised that in England only the larger towns had any pretence of meat inspection, and that in many places a butcher might, if he liked, offer for sale diseased or unsound meat with little risk of discovery. He drew attention, too, to the necessity for public

abattoirs as against private slaughter-houses, and many other points in which Great Britain lags behind other countries in respect to the inspection of foodstuffs. At the termination of the discussion which followed Professor F. Hobday proposed the following resolution, which was carried unanimously, to be sent to heads of corporations and local authorities:—

That in the opinion of this meeting it is essential, for the protection of the public health, that a proper system of meat inspection be arranged; and that the veterinary surgeon, by virtue of his training in the diseases of animals and their flesh, was the best authority to be utilised for the purpose. Also that if public slaughter-houses were erected the cruelty to animals which sometimes occurred in private slaughter-houses would be prevented, and young children would be debarred from being within its precincts.

If the inspection of meat for human food is to be thorough and reliable it must be done by the scientifically trained man.

DOUBLING OF THE SPINAL CORD.

Dr. Benjamin Lipshutz¹ reports a rare variation in the anatomy of the spinal cord encountered during the regular laboratory work in the dissecting-rooms of the Daniel Brough Institute of Anatomy at the Jefferson Medical College. No clinical history of the case was available. The anomaly, which was found in the body of an adult male aged 35, consisted in a bifurcation of the spinal cord beginning at the twelfth thoracic vertebra and extending to the caudal limit of the spinal cord so as to form two independent symmetrical halves. The caudal limit of each half was at the level of the cephalic border of the first sacral vertebra. The conus medullaris of each half was independent, union taking place at the level of the third sacral vertebra into a single large filum terminale which was attached to the dorsal surface of the first segment of the coccyx. The cervical and thoracic portions of the cord were normal. Another anomaly was present in the form of an hour-glass shaped band of dura in the sagittal plane projecting between the two halves of the cord. There was also a number of small, flattened calcareous plaques adherent to the spinal arachnoid. Duplication of the spinal cord is a rare occurrence, only ten undoubted cases having been collected by Bruce, McDonald, and Pirie in 1905. The division usually occurs in the lumbar or lower thoracic segments of the cord. Other abnormalities, though absent in the present case, are frequently present, such as spina bifida, meningocele, and cutaneous or bony malformations.

MALARIA INVESTIGATIONS IN THE MALAY STATES.

SOME years ago a Malaria Bureau was established in the Federated Malay States, but its operations in the past seem to have been hindered by the inadequacy of its staff. It is locally admitted that the malariology of the country is very incomplete, but efforts are now in progress to make good this defect. Owing to the incompleteness of the available information it has been necessary hitherto to exercise great caution in accepting any generalised conclusions. From a recently published report by Dr. H. P. Hacker² we gather that efforts are at present being made to place the malariology of Malaya on a firm basis, and that now the main object of the work of the Malaria Bureau will be to collect full and accurate data concerning the disease and its various factors throughout the country. No general conclusions will be issued by the Bureau until they can be based upon an incontrovertible basis of facts. With a view to carry out the work we understand that the staff of workers is to be increased, and that from time to time reports will be issued giving details of the information as it is collected. These reports, Dr. Hacker believes, will become objects of reference and may assist other workers in arriving at a more uniform theory and practice of malaria prevention and treatment. In his

¹ Archives of Dermatology and Syphilology, August, 1920.
² THE LANCET, 1914, II, 347.

¹ Archives of Neurology and Psychiatry, July, 1920.
² Federated Malay States, Malaria Bureau Reports, vol. I, November, 1919. By H. P. Hacker, M.D., F.R.S., London, Medical Entomologist, Federated Malay States, Singapore. Pp. 77. (In sale.)

recently published report Dr. Hacker calls attention to the insufficiency of our knowledge of the relative malaria-carrying properties of the various species of anophelines, and the conditions which control these properties. The pathogenicity, too, of jungle species of these mosquitoes is practically an untouched subject, and stands in urgent need of coordinated research. In the Malay States the most important carrier of the malaria infection seems to be *A. maculatus*, which is found usually in the hilly country; the less dangerous, *A. aconitus* and *A. fuliginosus*, are found in open swampy regions, and *A. umbrosus* in low-lying jungle. There are, of course, many other anophelines in Malaya, but these are among the species that have chiefly to be considered. The felling of jungle and the opening up of wooded ravines have been advocated by some authorities as an antimalaria measure. Experience, however, in the Malay States has shown that such operations require to be carried out with extreme caution. *A. maculatus* does not breed under the shade of secondary growth of vegetation or jungle, but as soon as a ravine is cleared *A. maculatus* appears and begins to breed rapidly, while the less dangerous jungle-frequenting mosquitoes disappear. If the opening up of hill jungle be necessary for the development of a place, Dr. Hacker insists that attempts should be made to keep ravines, which contain practically all the water and therefore all the breeding-places, under the original jungle and thus prevent the access of the dangerous *A. maculatus*. This is only one of the points touched upon by Dr. Hacker in his present report, there are also others of equal interest which can be usefully studied at first hand by those concerned with the problems of malaria. The proposed collection and publication of carefully verified data concerning the disease in the Federated Malay States is likely, in our opinion, to give valuable assistance in the solution of some of the still outstanding problems connected with malaria, a disease which impedes the economic development of many of our colonies and dependencies.

EYE-STRAIN IN KINEMAS.

IN response to an inquiry from the London County Council as to the possible causes of eye-strain in cinemas and the best means of removing them the committee of the Illuminating Engineering Society has now issued an interim report¹ which has behind it the authority not only of that society but also of the Council of British Ophthalmologists and of the Physiological Society, both of which bodies were represented on the committee. The point chiefly dealt with in this interim report is the proximity of seats to the screens. Experience shows that discomfort arises largely through effort involved in raising the eyes to observe pictures presented at an unduly high level, and the recommendation is made that the angle of elevation measured to the top of the picture should not exceed 35°. The cinema headache would appear to have this much in common with the "Academy headache," that both are related to fatigue of the elevator muscles of the eye. A limit to the lateral angle of view of 25° is also recommended. Another definite recommendation is that the illumination of the auditorium, which should be nowhere less than one-fortieth of a foot candle, should gradually be increased from the front to the back of the auditorium. A still more important point is that a definite rule should be enforced that no unscreened source of light should be visible to the observer from any seat in the theatre while looking towards the picture. Other matters touched on but left to be dealt with more fully in future reports are the different varieties of "flicker," film, and mechanical defects, and a possible standard of minimum brightness for the screen. The only reservation made by any members of the committee is by those representing the cinema industry, who draw attention to the absence of evidence of serious injury by eye-strain, and are of opinion that where the recommendation concerning seating would entail serious financial hardship there is no justification for the

imposition of the rule recommended. Our own opinion is that here is a matter in which the interests of the public, although not vital, are yet of sufficient importance to justify State or municipal protection.

SYPHILIS SIMULATING SYRINGOMYELIA.

Dr. Walther Blumenthal,¹ of Coblenz, records the following instructive case. A lieutenant, aged 22, was exposed to infection in the beginning of September, and developed a chancre three weeks later, which cleared up under treatment with neosalvarsan. At the end of October he complained of both hands feeling dead. On examination dissociated sensory paralysis was found in both hands; in the right more than in the left, corresponding to a small isolated focus in the seventh cervical segment in the neighbourhood of the central canal. There was slight disturbance of tactile sensation in the first, second, and third fingers up to the middle line of the third finger; and perception of pain, heat, and cold was almost completely lost in these fingers. Examination of the rest of the nervous system, including the reflexes, cranial nerves, and fundi revealed nothing abnormal. Lumbar puncture was not performed. Although the initial lesion had appeared only five weeks previously and no secondary symptoms had yet developed the clinical picture suggested syphilis of the cervical cord. Energetic treatment with silver-salvarsan was instituted and the symptoms gradually subsided in the course of three months, during which other spinal-cord symptoms occurred—viz., slight inequality of the knee-jerks and abdominal reflexes—but soon disappeared.

THE METRIC SYSTEM IN THE BALANCE.

In October, 1916, a Committee was appointed to consider and report upon the advisability or otherwise of the compulsory adoption of the Metric System of Weights and Measures in the United Kingdom. This Committee, presided over by Sir Joseph J. Thomson, was appointed by the Conjoint Board of Scientific Societies, and a report was first prepared in June, 1917; delay, however, ensued through fresh considerations arising, and the report has only now been published. The terms of reference were wide enough to remove the question out of the purely academic sphere and to make it necessary for the Committee to consider the effects in common life as well as in technical manufactures and industries. Briefly, its recommendations covering scientific ground in a wide sense amount to the following:—

to the following:—
That the British system of units of weights and measures be retained in general use in the United Kingdom.

That a definite movement towards compiling statistics in metric units should be set on foot. (This refers chiefly to maps and plans and contours, which, it is held, should be shown in metres and not in feet.)

That while it is not proposed to abolish such units as the mile, the yard, the foot, and the inch, distances should be expressed in miles and decimals of a mile, decimals of a foot, but not in any complex mix of miles and yards, feet, and inches; that railway charges should similarly be calculated in tons or in pounds, but not in hundredweights, quarters, and pounds, and so on.

That according to the above principle the pole, furlong, and league be abolished, as well as the square rod or perch and all areas of land being measured in acres and decimals, or in square feet for small plots. Similarly, the abolition of the grain, drap, stone, quarter, and hundredweight of 112 pounds is recommended, and the complete abolition of apothecaries' weight.

That the use of the gallon as a general standard of capacity be retained, subdivided for retail use into quarts and pints; that the peck, bushel, quarter, chaldron, and barrel be abolished and measured by weight substituted.

That the use of the metric system be made compulsory with as little delay as possible in the whole trade in fine chemical and drugs, and in all specifications and prescriptions relating to such

That no change in the existing system of British coinage is attempted in present circumstances.

With few exceptions the report appears to have been considered favourably by the scientific societies and financial authorities, the former urging the use of the metric system in all scientific work and its introduction into industries, especially those of a complicated kind involving scientific and technical processes. That medicine has been singled out for special treatment by a non-medical committee of reference is a testimony to the

exactness of our discipline and to the open-mindedness of its votaries. The Council of the Royal Society of Medicine strongly endorses the proposal to adopt the metric system in connexion with medical science, and the Council of the Royal College of Surgeons expressed its approval of the recommendations. It will be seen that these recommendations do not bid for uniformity and, if adopted, would leave medicine still with a more or less mixed system of standards. But the use of the metric system in prescribing must result in its adoption for the weight and dimensions of the human body; and the rest would soon follow. It is significant that the chairman, Sir J. J. Thomson, has not signed the report, nor have M. le Duc de Broglie and Mr. Charles P. Sparks. The signatories are Mr. H. Wilson Fox, M.P.; Sir Robert Hadfield, F.R.S.; Mr. A. R. Hinks, F.R.S. (secretary); Sir Philip Magnus, M.P.; the late Professor J. Perry, F.R.S.; Professor W. Cawthorne Unwin, M.Inst.C.E., F.R.S.; and Professor W. W. Watts, F.R.S., secretary to the Conjoint Board of Scientific Societies.

A MILITARY M.O.H. GROUP.

WITHIN the Society of Medical Officers of Health a group is being formed by those members who are specially interested in naval, military, and air-force hygiene. Its formation has the approval and support of the official heads of the medical departments of the Navy, Army, and Air Force. The group will be drawn from the three Services and from their auxiliary forces, membership being confined to medical men who hold, or who have held, sanitary appointments in any of these Services and to those who are in the possession of a diploma in sanitary science, public health, or State medicine. The object of the group is to provide an opportunity for present and past officers of the Services to meet and discuss papers dealing with subjects of common interest as well as to make more close the liaison between officers in the Services and medical men carrying out similar work under civil conditions. Nothing but good can come of such free and informal exchange of views between those who have seen hygienic practice under all manner of conditions, and the deliberations of the group will be watched with attention by those officially responsible for public health. All medical men eligible for membership are invited to communicate with Major W. N. W. Kennedy, O.B.E., Town Hall, Croydon, acting honorary secretary. The subscription to the society, including membership of the group, is £1 1s. per annum, which entitles members to receive a copy of *Public Health* each month. The first meeting of the group will be held on Friday, Sept. 24th, at 4.15 P.M., when officers will be appointed, and Brigadier-General W. W. O. Beveridge, director of hygiene at the War Office, will read a paper on Disinfection in the Field.

ATTENTION is directed to the notice in our news columns of a course of post-graduate study for general practitioners at St. Andrews, under the direction of Sir James Mackenzie.

THE constitution of the War Office Departmental Committee to inquire into the expert knowledge derived from the experiences of the late war in regard to shell shock, over which, as we announced last week, Lord Southborough presides, is as follows, the departments which each member represents being added in parentheses: Temporary Surgeon-Lieutenant Thomas Beaton (Admiralty), Dr. J. L. Birley (Air Ministry), Dr. H. J. Bond (Board of Control), Dr. Maurice Craig (Ministry of Pensions), Wing-Commander M. W. Flack (Wing-Commander J. McIntyre (Air Ministry), Dr. H. W. Kaye (Ministry of Pensions), Dr. Hamilton C. Marr (Board of Control for Scotland), Surgeon-Commander E. T. Meagher (Admiralty), Brigadier-General J. G. S. Mellor, Sir Frederick W. Mott, F.R.S., Major A. D. Stirling and Dr. W. Aldren Turner (Army Medical Department), Mr. Stephen Walsh, M.P., Major W. Waring, M.P., with Major W. R. Galwey (secretary).

PUBLIC HEALTH IN SOVIET RUSSIA.

BY L. HADEN GUEST, M.C., M.R.C.S. ENG., L.C.C.
SECRETARY AND PHYSICIAN TO THE BRITISH LABOUR DELEGATION.

II.—THE MEDICAL SERVICES.

THE work of dealing with epidemic diseases in Russia has been carried out by a nationalisation and centralisation of all public health and medical work. The Commissariat of Public Health came into existence at the end of 1917, and controls the services of the army and navy, as well as that for the civilian population. The work of the department is divided into (1) medical and (2) sanitary, (3) a temporary anti-epidemic service. All medical services of any kind whatsoever come under the control of the Commissariat. In theory all medical and dental attendance is free, and in practice free treatment, in so far as it is available with the limited resources at the Soviet Government's disposal, is "accessible" to all free of charge. In fact, alongside of this free system the old system of private practice continues, although only some 10 or 20 doctors in Petrograd are not in the service of the Soviet Government. In Petrograd the acceptance of fees is severely frowned upon, and I heard of a physician in State employ being prosecuted by the Tribunal of the Peoples' Justice for demanding a fee of 1000 roubles, nominally £100. In our money 1000 roubles is roughly equivalent to 2s. at present rate of exchange, and will purchase in the open market 2½ lb. of bread, about eight eggs, or about a quarter of a pound of butter. In other towns the taking of fees seems to be regarded less severely. As far as I could gather all hospital or institutional treatment was free in fact.

Owing to the shortage of doctors it is usual for three, four, or more separate appointments to be held at the same time, and the doctor holding them receives a salary for each appointment. A usual monthly salary is 4000 roubles per appointment. The number of doctors in Petrograd, including army doctors, was 1300, about half of whom were women. Doctors are paid salary on a scale varying with (1) length of service, (2) specialist qualifications. Doctors also usually have rooms provided, and very frequently their meals provided also. I was told that sometimes doctors receive not only the salary for each separate appointment held in money, but also the rations for each separate appointment in kind. One doctor told me that extra bread came in useful for paying cab fares. There are a few droschies still available in the streets; the fare for a short distance in Moscow, for instance, being 2000 or 3000 roubles. But the "isvostehniks" (drivers) prefer to be paid in kind. Small tablets of soap are a useful kind of small-change to carry about.

Organisation in Petrograd.

The organisation in Petrograd consists of a central town public health service under the control of the Petrograd Health Department, who are all Communists. At the head of this is Dr. Pervouchen, who was careful to explain to me that he held his appointment, not as a doctor, but as a Communist and a representative of the workers. Under this central department are the ten districts (rayons) into which the town is divided, each district having its own health department. Sick persons able to attend as out-patients go for medical treatment to one of the town clinics, and if they do not know where to apply can get information at the district headquarters of the health department. Those needing to be visited at home send a message to the district headquarters and a doctor calls at the house. I was told that all cases requiring hospital treatment are transferred to hospital by the ambulance service under the control of the town.

I personally inspected a parade of this ambulance service, which was under the command of Dr. Haffkine (nephew of Dr. Waldemar Haffkine). The organisation was military, and the personnel consisted largely of medical students. It has been created by the Bolsheviks. This transport service, however, discharges several different functions, and provides

(a) first aid by doctors in case of accident and emergency; (b) transport of cases to hospital; (c) transport of infectious cases to hospital, and disinfection and repair in the homes of infectious cases removed to hospital. I saw myself a large number of motor ambulances and horse ambulances and one steam tram ambulance, as well as closed wagons for transport of clothing and bedding for disinfection. At the special parade which took place in the grounds of a large hospital the personnel of the corps gave a display of stretcher drill in which they were quite reasonably proficient. Mistakes and awkwardnesses were apparent, but were of exactly the same nature as those made by any ordinary field ambulance on nervous occasions. The clothing of the personnel of the corps was good, close fitting coats and breeches of leather for the majority and good boots. The heavy losses from infection suffered by doctors and sanitary personnel have made the authorities very careful of the lives of those doing this dangerous work. Doctors engaged in infectious diseases work are paid 80 per cent. more than others, and get rations on "Red Army" or highest scale. Nevertheless, 50 per cent. of doctors so employed have died from typhus and other infections. The statistics regarding number of persons employed on this first-aid and transport service in Petrograd I give as they were stated to me by Dr. Pervouchen: Doctors, 40; sanitary instructors (medical students), 36; motor ambulances and motor-cars, 104; horse vehicles (expropriated private broughams are used as well as ambulances), 189; trams, 10; steam tram, 1; sanitary wagons, 5. The cars, wagons, &c., I saw were in workmanlike condition. The horses were in reasonably good condition. The total number of personnel engaged in disinfection duties was given as 1017, which included 360 trained sanitary men to carry out disinfection and subsequently repair any damage done. This insistence on repair of damage was for the purpose of cultivating good feeling and so facilitating disinfection.

Hospitals: A New Institute of Radiology and Röntgenology.

During the height of the typhus epidemic last winter many temporary hospitals were opened for treatment of this disease. Many ordinary hospitals (about 100), however, had to be closed on account of absence of coal and wood for heating, and consequent breakdown of

speaking English and French—that whereas the discipline in the hospitals at the beginning of the Revolution was very bad, it was now "like old times."

The only other medical institutions I saw in Petrograd were a clinic for the study of defective children, in which they were specialising in rather elaborate studies of mental defect, and a "first-aid" hospital for emergency cases. All three of these were far above

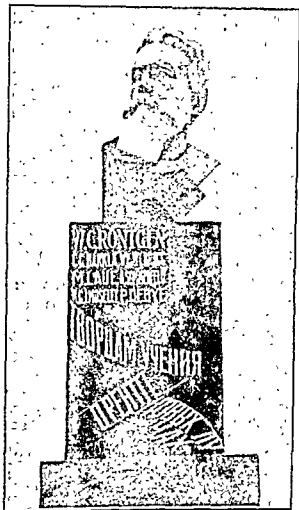


FIG. 2.—The monument to Röntgen in the forecourt of the Institute. The names on the plinth are: W. C. Röntgen, C. G. Barkin, W. H. and W. L. Bragg, M. Lane, H. Sommerfeld, H. G. J. Moseley, P. Doherty, M. Sklodowsky-Curie, H. Curie, H. Becquerel, E. Rutherford, W. Ramsay, W. Crookes, J. J. Thomson, P. Leuard, H. A. Lorentz, C. T. R. Wilson, Millikan, M. Planck, N. Bohr.

the average level of Russian hospitals, but I did not have an opportunity of seeing a normal hospital in Petrograd owing to the necessity for attending a tremendous military and naval review got up in honour of the Labour Delegation. The mortality of children in hospital (up to 12 years) was given as 21 per cent. The birth-rate was said to be rising rapidly. The figures of 40,000 births per annum were given for the pre-war Petrograd of 2,500,000 people, and a present number of 20,000 to 25,000 births per annum for the present Petrograd of about 1,000,000.

Arrangements in Moscow.

In Moscow the medical arrangements were rather different. Free treatment was available, but fees appeared to be paid pretty openly to doctors and dentists. And all institutions were centralised and not arranged in districts, nor was there apparently a district health organisation in addition to the central town organisation. A hospital at the Kremlin, where the chief Government offices are, was well equipped with medicines, but the resident doctors were only partly qualified. The arrangements were otherwise passable. Two town hospitals inspected were badly arranged, badly disciplined, and, in the typhus block, dangerously dirty, no disinfection and little washing having been attempted. These two hospitals were indicated to me by non-official persons as "normal" samples of Russian institutions. The beds were largely without linen and mattresses and the very poor blankets provided were dirty and insufficient. The surgical wards, however, were very much better than the medical. The doctors looked ill, half-starved, and terribly depressed. An

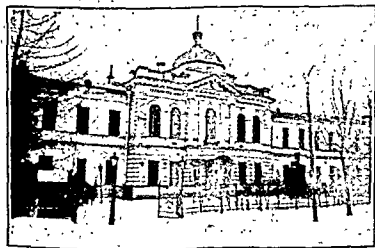


FIG. 1.—The new Institute of Radiology and Röntgenology in Petrograd.

water and sanitary arrangements. As, however, the population has decreased from 2,500,000 to about 1,000,000 (probably 800,000), the decrease matters less than it would have done formerly.

A new Institute of Radiology and Röntgenology (see Figs. 1 and 2) has been erected under the medical control of Dr. Nemenoff, President of the Institute. This institution combines a hospital with a scientific research department, and is publishing some of its results at present. I saw these research laboratories as well as the wards, and the work was going on quite satisfactorily except for the lack of Coolidge tubes. A special factory for repairing and remounting of X ray tubes has been erected in Petrograd in connexion with the Institute. I was told—by a junior house surgeon

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with 40 per cent. before the war. This is an intolerable state of things.

Building in Concrete.

Among the methods favoured by the Ministry of Health for the reduction of the cost of building is the use of alternative materials of construction to the orthodox brick and mortar. Amongst the various substitutes hollow concrete blocks are, perhaps, the favourite. A bungalow built on the Clifton-Ewart system has just been put up at Nottingham. The chimney stacks are of brick, but in later models these will, no doubt, be replaced. The rest of the skeleton is composed entirely of concrete blocks. No wood has been used except for doors and windows. The bungalow, which was built in three weeks and could by intensive work have been completed easily in half the time, contains four good-sized rooms, bathroom, and lavatory, and when the subsidy has been deducted the cost will be £300. No doubt such bungalows could be built more cheaply, as, for example, by the employment of unskilled labour. But it is premised that any attempt to cheapen housing construction will be rendered void by the interest vested in the brick. Every builder is dependent on the good-will associated with the brick, for though he might build his walls with non-union labour he would be unable to find plumbers, carpenters, or electricians to complete the work. So it comes about no one can afford either to use bricks or to do without them. In the meantime, the unskilled man remains unemployed and his children are crowded ever more and more into the insatiable slums.

Standards of Accommodation in Herefordshire.

Some time ago the Ministry of Health suggested to medical officers that the housing section of their annual reports should be issued as a separate document. Among others Dr. Herbert Jones, M.O.H. for Herefordshire Combined District, has complied,¹ and a comprehensive survey of present housing conditions is the result. In half of the parishes more houses are needed, and the schemes submitted to the Government, even were they completed at the present day, would not meet this need. As regards the standard of accommodation, Dr. Jones would have each house built on a quarter-acre plot and to contain parlour, kitchen, wash-house, scullery, bath, and three bedrooms. By discussing the question at "women's institutes" and other organisations he has discovered a unanimous opinion in favour of both parlour and bath. The latter is wanted even where water cannot be laid on, the women being more anxious that the bath should be easily emptied than that it should be easily filled. He adds that there are old-age pensioners occupying houses larger than they need, and hints that if convenient houses—presumably with less than three bedrooms—were provided for these their present dwellings would become available to larger families.

A Tragedy at Wandsworth: No Room for the Baby.

An occasional incident of human interest serves sometimes to bring home the importance of impersonal political movements. Such an incident was provided at a London police-court, when a man was recently charged with aiding and abetting his wife, aged 23, to kill herself. The woman died, it was said, as the result of an illegal operation, and the evidence showed that her wish to avoid the birth of a child was due to her inability to find a house which would provide it with a decent home. We agree with the magistrate that a full realisation of the price which our fellow citizens are paying in suffering and disease would help considerably those who are now negotiating to find some speedier way of settling their differences and of proceeding with the rapid delivery of houses.

¹ Annual Report, 1919, issued August 29th, 1920.

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The Labour Housing Association.

THE Labour view on the shortage of houses was ventilated at Portsmouth on Sept. 4th, when the Labour Housing Association held its annual meeting. Much of Mr. Thomas's speech might have been uttered on behalf of the Ministry of Health: as when he pointed to the influence of bad housing on political unrest or advocated increased transport facilities to combat overcrowding. But the resolution condemning the Government had no constructive suggestion and criticisms of the Ministry's housing standards carried no particular weight. Some interesting figures were given by Mr. George Hicks, secretary of the Bricklayers' Union, who announced that out of 51,000 bricklayers only 7000 are engaged in house construction, while of all building trade operatives less than 10 per cent. are so occupied as compared

SCARLET FEVER IN MANCHESTER.—Seventy-five cases of scarlet fever were reported in Manchester last week, as against an average of 60 during the six preceding weeks. There are four cases of small-pox in the Clayton Hospital, but no new cases have been notified in Manchester during the past fortnight.

eminent physician I met could not be induced to believe that England might lift the blockade and allow medical and other supplies to come through. He was a very sad, unsmiling, and bowed man. Other medical institutions seen in Moscow were much better, the special clinics lately established being on more modern lines.

Medical Service in Country Districts.

In addition to Petrograd and Moscow, I saw hospitals at Saratoff on the Volga and at Beresnaki on the Volga. The standard was not high, but it was adequate. A great effort against the odds of tremendous difficulties is being made in Russia to keep the medical service going and to improve it. Their difficulties, apart from lack of soap and medicines, lie in the failure of the supply of doctors, which has led to the temporary employment of partly qualified people for appointments needing fully qualified men or women. The medical faculties at the universities are working, but not well, and it will be some time before Russia has all the doctors she requires. The conclusion of peace will render the army doctors available, but even their services will not fill up the gap that has been made by death, war, and revolution.

The classification of medical institutions in Russia is given in the following list, which represents, however, rather the ideal than the achieved (no Russian statistics can be accepted without serious reservations):—

- (1) General clinics for areas with a population of 2000 to 3000 persons.
- (2) Special clinics for eye diseases, skin diseases, venereal diseases, &c.
- (3) First-aid institutions.
- (4) Night-duty medical service.
- (5) Visiting medical service.
- (6) (a) General hospitals for regions; (b) special hospitals (obstetric, ophthalmic, &c.) which serve whole towns and their surrounding villages.

The total number of hospitals in the republic is given as 10,000, with about 270,000 beds, 17,000 doctors, 35,000 medical assistants, and 120,000 junior medical staff. Medical arrangements for the country aim at making medical assistance available for all at a maximum distance of five versts. In pre-revolutionary Russia the distance was often 20. Progress has already been made in the direction desired, notably in the Poltava government.

The nationalisation of medical service has, of course, extended to health resorts, the places available for treatment being usually allotted by the Central Commissariat of Health, except in the case of institutions of purely local importance. During 1919, 5000 patients were so treated, and they were no longer the old-time patrons weighted with over-generous living. The distribution of patients at Lipetz in the Tambor government is given as Workers and Soviet officials, 70 per cent.; Red Army, 25 per cent.; other citizens, 5 per cent. Board, residence, and treatment are all free at these institutions.

(To be continued.)

HYGIENE ON THE SEA:

ACCOMMODATION FOR SEAMEN IN SHIPS OF TO-DAY.

(BY OUR SPECIAL CORRESPONDENT.)

I. THE "AQUITANIA."

THE *Aquitania*, of 45,647 tons gross (this is her sea-going loaded weight), with the black tops of her four red funnels soaring to the skies, looked huge as one approached her in the docks at Southampton. And a big ship she is—over 300 yards long, with 97-ft. beam, and a load-draught of water of 35 feet. She is fast, too, for her oil-driven turbine engines, with their 56,000 horsepower and their four screws, give her a speed of 23 knots, or 26 land miles per hour. When the Cunard Company was good enough to send me on board she was in the usual turmoil of a ship the day before going to sea, when all kinds of stores are coming on board, strangers are flocking to and from business, and, in spite of these strangers and the dirt they are bringing on board, every endeavour is being made to get the ship thoroughly cleaned. At such a time, seeing she is alongside a wharf with big sheds that keep the wind off her, a ship is so hot that one feels she should be taken out into the stream and anchored for a night to get aired and cool before her passengers arrive; but that is a counsel of perfection. They are many, these passengers, 750 first-, 900 second-, and some 2000 third-class, and with her officers and crew her captain has the responsibility at sea for the lives of some 4000 souls.

Comfortable Accommodation for Passengers.

The company is doing what it can to make them all as comfortable as they can afford to be. There are suites for millionaires with sitting-rooms and bedrooms, smaller cabins for the less wealthy, all in the first-class section having fixed basins and hot and cold water laid on. In the third-class there are folding wash-stands and the furniture is less magnificent, but the beds are good. For the first-class passenger there is a beautiful saloon, a grill-room, too, a magnificent smoking-room, lounges, a swimming bath, and a gymnasium. The second-class saloon is very bright and comfortable. These saloons have chairs, and that shows the company has confidence that the steadiness of the ship and the deep pile of the carpets make it certain that in no weather is there fear that the rolling of the ship will seriously incommode the passengers. Not till we come to the third saloon do we find the fixed pedestal, rotating seats that we all know at sea. There are pianos for every class of passenger.

The medical officer on duty received me, but as he was for the moment busy I was taken round the ship by the dispenser, formerly a chief sick-berth steward in the Royal Navy, and under his capable guidance I saw how the practice of hygiene is improving at sea. There are three hospitals in this great ship, and in each 12 beds. One hospital for men, with the dispensary and operating-room adjacent, and another for women; a third, distant and well isolated, is for infectious diseases. Besides the dispenser and his mate, there are two female nurses on the staff.

The System of Ventilation.

The ship is, of course, artificially ventilated. In fine or moderate weather the numerous side ports are open. There are some in dangerous positions which are fitted with Utley's patent water-excluding side lights, which permit ventilation in all weathers. But never can enough air for so many people pass naturally in and out of so large a ship. Accordingly there are everywhere between decks, in cabins, saloons, and lobbies, in bath-rooms and water-closets, trunks or conduits for forced ventilation, carrying in fresh air or exhausting the foul. And as cold air might chill the inhabitants and cause complaints there are fitted in the ship 36 thermo-tanks, which heat the air before it is introduced into the ship. The ventilation of a ship is a com-

pllicated problem, and it is said on board that the currents in a ship cannot always be made with advantage to run constantly in the same direction; accordingly these thermo-tanks and their fans are fitted so that they may be driven either direct or reversed: that they may be used alternatively as supply or exhaust ventilators. This is, I think, to be regretted. Trunks are hard to clean, and an exhaust trunk is apt to accumulate some dust, and when the current is reversed some of that old dust is carried out. An epidemic of sore-throat has been attributed to this cause. Generally fresh air is supplied to cabins and passages, while lavatories, &c., have exhausts. Water-closets are in such a ship so high above the water that shore patterns are used, with a strong flush from a sanitary tank of sea water.

The Crew's Quarters.

But readers of THE LANCET will specially desire to know what improvements there are nowadays in the accommodation of the crew. The *Aquitania*, a hospital ship in the war, has since the war been completely refitted, and advantage has been taken of this opportunity to remodel all the berthing arrangements of the crew. Certainly they are very different from those the writer remembers in the *Campania* of the same line, when she was the greyhound of the Atlantic: The stewards are berthed amidships, the seamen and firemen forward. Most of the stewards live in large dormitories with double-tiered iron beds all round, while the seniors have one, two, or three berthed cabins: The seamen and firemen have small cabins each holding three or four men; and what different places they are from the old forecastle! I estimated one of these cabins, for two men, as 9 ft. high, 9 ft. long, and 8 ft. wide, 728 cub. ft., giving each man, not the 120 cub. ft. required by the law, but 360 cub. ft. of air space, and there was besides an air trunk and a 10-in. side port. 120 ft., be it remembered, is all that the Merchant Shipping Act requires. The rest is supererogation. There was in this cabin an exposed iron beam; that it had no insulating cork-paint made me anxious, but I was assured that the ship was kept so warm by steam-radiators that even a naked iron beam like this did not sweat. There was a little cabin, also a mess place, for the four boys who do duty on the bridge, and if only boys could go on always serving in the *Aquitania* there would be little hardship in a seafaring life beyond the weather. There are large mess decks for the seamen and firemen, well warmed and well lighted, with tables for their food and benches to sit on. Not least of the benefits is it that the men do not have to prepare their dinners, nor do they get them cooked by an inferior cook, for all their food is drawn from the ship's galley where the large staff of cooks prepares food daily for some 4000 people. Compare all this with accounts of the merchant seaman's lot even 10 years ago!

Stewards and their Meals.

But I saw no mess places for the stewards. In the *Campania* 15 years ago many of the stewards and stewardesses sat down to meals in the saloon after the passengers had finished, and it was a pleasure to see them comfortable. Consequently, I was disappointed to find that in the *Aquitania* the company have gone back to the evil custom of giving the stewards good food, indeed, but no table at which to eat it. It always pains me when I am travelling by sea to observe the stewards standing up to their meals at the pantry counters; not only the position but the oppressive heat must tend to wear them out and prevent the companies from getting their best service. I am sure that with a little consideration the company can better this hardship, which is far from inevitable.

The *Aquitania* no longer burns coal, only oil. That also makes for the comfort of the crew. I noticed there seemed few baths for firemen, and asking a fireman who was by if there were others, he told me the baths were less necessary now, the work was so clean; indeed, it was unnecessary to change your clothes at the end of a watch in an oil-fired stokehold. Oil has enormously improved the comfort and status of the

UNEMPLOYMENT INSURANCE.

fireman. By lessening his numbers it has made room in the ship for allotting greater space to the crew individually, and for increasing their comfort, as I have said.

My thanks are due to the company, and to the various officers of the ship, who, themselves very busy, yet made a little time to show me everything, and to answer courteously all my many questions.

UNEMPLOYMENT INSURANCE
IN RELATION TO NATIONAL HEALTH.

THE Unemployment Insurance Act, 1920, has received the Royal assent, and will come into operation on Nov. 8th. Public attention has been so much occupied with foreign politics and with domestic problems of more immediate interest, or making more insistent claims for consideration, that the passage of a measure affecting a vast number of employers and employed persons will perhaps only be realised by many of these when they find themselves called on to pay their contributions under it. Many such will have forgotten that the National Insurance Act, 1911, not only introduced a compulsory system of health insurance, but also provided, more or less experimentally, for compulsory insurance against the ill-effects of unemployment in certain scheduled trades. Presumably the experiment has been found to be successful, for the new Act extends compulsory insurance to substantially all persons for whom health insurance contributions have now to be paid.

Persons Exempted from the Act.—Employers' Contributions.

Outworkers, agricultural workers, and persons in private domestic service are exempted from its operation, as are also certain classes of employed persons whose rights and conditions of employment render such insurance unnecessary in their case. These, however, are for the most part persons excepted from the operation of the Health Insurance Acts. Under the Unemployment Insurance Act workers over 70 years of age will be insurable, except in the case of old-age pensioners, who are excluded both as regards contributions and benefits. Even with the exceptions enumerated above it is estimated that about 8,000,000 persons will for the first time become insured against employment, making up the total of those so provided for to 12,000,000. Clerks and other non-manual workers will note that they are included if their remuneration does not exceed in value £250 per annum.

The contributions of employers will range from 4d. per week for men over 18 years of age to 2d. for girls between 16 and 18, and the employee will contribute from 4d. to 1½d. according to age and sex, payment being made by special stamps in the manner with which health insurance has made all familiar. Benefits will be 15s. per week for men, 12s. per week for women, and half the full rate for contributors under 18 years of age. The Act provides further for certain returns of contributions at the age of 60, and for the substitution of special schemes giving equal or superior advantages with the approval of the Minister of Labour.

Interdependence of Health and Unemployment Insurance.

Outwardly the connexion between health insurance and unemployment insurance is not close, and when the original Act of 1911 was passed many objected to the inclusion of two subjects apparently disconnected and both of great national importance in one measure. Both health insurance and unemployment insurance, however, have as their object, or as one of the objects for which they have been brought into being, the provision of a means of existence for workers who from temporary, if disconnected, causes are unable to earn their living, and for those dependent upon them. If we consider the matter from this point of view we see at once that there is a hardship affecting an unemployed worker when he finds himself deprived of the means of buying bread for his children

through no fault of his own, and when he sees a neighbour equally with himself deprived of wages, equally with himself not responsible for his plight, saved by a provision of the Legislature; at any rate, from the urgent pressure of hunger. There is also the more important consideration of the inexpediency, from a national point of view, of allowing the worker, his wife, and his children to deteriorate physically during those periods of enforced idleness which appear to be inseparable from industrial employment. The maintenance of the nation's health is one of the first, if not the first, duty of those who govern it, and it is a duty receiving year by year a fuller measure of recognition. Under the Insurance Acts it will be the joint care of the recently constituted Ministry of Health and Ministry of Labour, the latter contributing its share by attending to the case of the wage-earner who is incapacitated as such, though enjoying his full bodily health.

Sir John Simon's View.

Sir John Simon, then Solicitor-General, in an introduction contributed by him to Mr. Orme Clark's treatise on National Insurance, called attention to this interdependence of health and unemployment insurance, though not quite in the above sense, describing the inclusion of the two in a single Act of Parliament as due to an overwhelming reason of practical convenience. He pointed out that it was a necessary condition for receiving unemployment benefit that the unemployed person should be "capable of work," and that the condition for receiving sickness benefit was that the candidate for it should be "incapable of work." He evidently regarded it as likely that if one form of insurance came into being before the other there would be a temptation to make unjustified claims upon the fund first set up. It had been at one time proposed to make unemployment insurance antecedent to health insurance, but to have done this, Sir John Simon apprehended, would have made the man who lost work through ill-health find it to his advantage to declare himself sound, which is obviously undesirable. The two halves of the new scheme of insurance, he therefore submitted, ought to work side by side, the sharp distinction referred to between the conditions to which the different benefits attach being carefully drawn and maintained.

Practical Importance of the Combined Measures.

Looking back thus on the words written by a law officer of the Crown nine years ago we can safely infer that so far as the Government of that day was concerned the association of unemployment insurance with health insurance was designed and was recognised as of practical importance, and also that the extension of the former has only been delayed by the war. Having regard also to the fact that the present Prime Minister was mainly responsible for the introduction of national insurance in 1911, we look upon the Unemployment Insurance Act of 1920 as evidence of his satisfaction with the result of national insurance carried out upon the administrative lines which he laid down. The experiment of unemployment insurance has now been made on a comparatively small scale in the building, shipbuilding and a few other trades. Experience on a far larger scale has been gained in health insurance, for the value set upon which in the public estimation the medical profession may regard itself as mainly responsible. Without public appreciation of the success of health insurance viewed as a whole it would hardly have been possible for any government to introduce another widespread measure of insurance, dependent for its funds upon a system of weekly contributions. We cannot forget that that system was at first chidden almost universally as irksome, unnecessary, and wasteful of time, but it now appears to be accepted as part of the nation's life on account of the results achieved. We look forward to similar acquiescence in the enactment, as at first they may be considered, of unemployment insurance, and to results in the maintenance of the public health, supplementary to and not less important than the results to be achieved by it in modifying and allaying social unrest.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Local Authorities and the Public Health.

The deadlock which has arisen between many of the recently elected local authorities in Ireland and the Local Government Board is likely to cause serious interference with public health work. These authorities in which there is now a Republican majority—and they are very numerous—have, in the main, decided not to recognise the authority of the Local Government Board or to submit their minutes or books for the inspection of that body. The Government has replied by refusing to pay any grants to such recalcitrant bodies. Among the grants payable by the Treasury are half the cost of the tuberculosis service and three-fourths of the cost of the service for venereal diseases. It is likely that both these services will be seriously curtailed, if not completely stopped. It is understood that the Dublin Corporation has already decided to close its tuberculosis dispensary, hospital, and sanatorium, and it is probable that other authorities will have to follow its example. There are inconveniences in living in a country with two de facto governments, each ineffective, and neither recognising the other.

Abolition of Coroners' Inquests.

The *Dublin Gazette* last week contained a proclamation under the Restoration of Order in Ireland Act (1920), prohibiting the holding of coroners' inquests on dead bodies in ten counties of Ireland and in the county boroughs of Cork and Limerick. This step is said to be "for the purpose of securing the restoration and maintenance of order." Any inquests required to be held are to be held by a court of inquiry under the Army Act. It is to be regretted that the Lords Justices have considered it necessary to take this step. It is true that in many cases the coroners' courts, like the other courts of the King, have been unable to function. It has been impossible to find either jurors or witnesses. In this they are in the same case as the ordinary courts of assize. In some cases, too, juries have brought in verdicts which did not seem to be justified by the evidence. On the other hand, many juries have discharged their duties with courage and complete honesty, and their verdicts have a sanction in public opinion which a military court of inquiry cannot have. It must not be forgotten, too, that in many cases sudden death, calling for inquiry, has been due to military action, and the public is not likely in such cases to have much confidence in the impartiality of a military court.

Belfast Water-supply.

The Belfast Water Commissioners have decided to ask tenders for the construction of a great storage reservoir in the Silent Valley, a district high up amid the Mourne Mountains, and not far from the famous County Down golfing centre, Newcastle. Up to the present time they have had to depend on intermittent flows of water obtained from the Annalong and Kilkeel rivers in the Mourne range of mountains, supplemented by the enlargement of Lough Strannagh in the Kilkeel river catchment; but what is wanted for a big city like Belfast is a much larger and more regular daily flow of water all the year round to meet the growing demands for water by the citizens of Belfast and the inhabitants of the surrounding districts, and hence the immediate construction of a great storage reservoir right up in the Mourne Mountains. Is what is now contemplated. This new reservoir, when completed, will have a storage capacity of 3000 million gallons and a tap-water area of over 250 acres, and it will by itself hold more water than all the existing reservoirs in the Woodburn and Stoneyford Belfast catchment areas at present in use. To many people the uselessness of constructing aqueducts from Belfast to the Mourne Mountains—a distance of over 20 miles—simply to tap a couple of rivers (the Annalong and Kilkeel) without any storage has been apparent, but now the making of a really large reservoir is to be begun.

ROUMANIA.

(FROM OUR OWN CORRESPONDENT.)

Danger from Ice-creams.

AN important measure has been passed during 1920 dealing with ice-creams manufactured and offered for sale in Roumania. The ordinary method of making ice-cream as sold in the streets is to boil milk with or without the addition of some form of starch, together with a certain quantity of eggs, sugar, and flavouring. This mixture is allowed to cool naturally and afterwards is frozen. The cooling may take place under most unsavoury conditions, for instance, in a crowded living room, a disused (and unclean) outhouse, a confined and dirty back-yard, or even a scrap-heap; whilst, in addition, the surroundings among which the ingredients are mixed in some instances baffle description. Added to all this, the vendors and makers are generally Turks or Italians, whose ideas of cleanliness, whether personally or otherwise, differ materially from the here so much desired "western standard." Bearing these facts in mind it will readily be conceded that the ice-cream when sold may be contaminated in such a way as to be a danger to the consumer. To minimise this danger the board of hygiene have given orders for the control of the manufacture of ice-cream and other similar commodities. These must not be manufactured, sold, or stored in any cellar, shed, or room in which there is any inlet or opening to a drain, or which is used as a living- or sleeping-room. Special precautions must also be taken against infection or contamination of the ingredients used in the process of manufacture.

"Plomaine" Poisoning from Meat.

A sharp outbreak of what would at one time have been labelled plomaine poisoning occurring at Czernovitz in July has been carefully investigated, and the conclusions arrived at are of scientific interest. The outbreak, which affected 42 persons, of whom three died, was due to the *Racillus enteritidis*, which gained entrance into pork sausages made on July 12th through the fecal pollution of the meat. The meat was left in the chopping-house in open vessels, and was contaminated from the large intestines of pigs which were brought into and cleansed in the chopping-house while the chopped meat was waiting for the next process in connexion with its conversion into pork pies. The practical lessons to be learnt from this outbreak are (1) the necessity for absolute cleanliness in all branches of sausage preparation so as to prevent the meat becoming infected; (2) the desirability of baking or cooking the sausage before use so as to raise it to a temperature sufficient to cause the death of any bacteria with which it is liable to be contaminated. In connexion with these preventive measures it is obvious that sanitary authorities should have powers to make and enforce regulations in regard to the preparation of pork sausages and pies, as well as that of many articles of food, thereby guaranteeing the constant supervision of all processes incidental to such trades. In the Czernovitz cases the symptoms were rapid onset, shivering, giddiness, headache, vomiting and diarrhoea, drowsiness, and extreme prostration. The incubation period varied from a few hours to a few days, and the patients either died or had a protracted convalescence; seven of them recovered only after six to eight weeks' illness.

Dust and Smoke Prevention.

The Bucharest City Council for Sanitation recently held a special meeting on the question of the dust and smoke nuisance. They emphasised the importance of dust collection and removal, and the need for municipal cleanliness in its widest sense. Roads should be made of hard and practically impermeable paving in thickly populated districts, instead of with defective stone and ordinary wood blocks; hoses should be used on all courts and alleys and small streets; and damp dust-ers should be used both in private houses and in public institutions. The problem of smoke and its preventives was also discussed.

Bucharest, August 15th.

PUBLIC HEALTH.

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Public Health.

ANNUAL REPORT FOR 1919 OF THE MEDICAL OFFICER OF HEALTH FOR NORWICH.

Dr. H. Cooper Pattin in his report gives the estimated population of the city as 124,997, and the area in statute acres 7923. The birth-rate for 1919 was 16.35 per 1000, which was below that of the 96 great towns (19 per 1000). The gross recorded death-rate was the same as the average of the 96 great towns—13.8 per 1000. The infantile mortality-rate among legitimate children was 78.4, and for the illegitimate 166.7 per 1000 births—a striking contrast. The zymotic death-rate was rather lower than that of the country as a whole—928 as against 1000. There was only one death from enteric, and the cause of the enteric fever cases does not appear to have been either overcrowding or bad drainage. However, in 81 per cent. of the affected houses the food of the family was stored in an unventilated receptacle in the actual living-room, and 81 per cent. of the affected dwellings were within 20 yards of a sewer grating or gully. 25 per cent. of the cases clearly recollected having consumed shell-fish prior to the attack. There were 140 notifications of phthisis and 79 of other forms of tubercle. 108 deaths were certified as due to pulmonary and 43 to other forms of tubercle, a figure making a total of 151 deaths from the last 25 years (221 much below the average of the last 25 years).

Dr. Pattin considers himself entitled to affirm that a diminution in the amount of tuberculous diseases is taking place. He says that he has long placed first in importance in the treatment of these diseases not houses, helpful as good houses are, but nutrition, and he confidently anticipates a further lessening of the amount of the disease among working people, proportionately with food. Other measures of great importance are in income, housing, and, above all, the gratuitous disinfection of all rooms in which a person has died from tuberculous disease, detailed instruction as to home treatment of affected persons, and the sorting out of tuberculous children. The Norwich City Council has appointed Dr. Theodore Fisher as tuberculosis officer, and only awaits the sanction of the Ministry of Health for the proposed site of their tuberculosis dispensary. It is also proposed to establish, in conjunction with the Norfolk County Council and the Borough of Yarmouth, a sanatorium and training farm at Stanninghall, near Norwich, where 700 acres, with farm buildings, and a farmhouse which makes quite a good administrative centre, have been procured and turned over to the joint committee by the Red Cross Society. A start has been made with a temporary pavilion accommodating eight males. An open-air school for children has also been inaugurated.

Housing conditions.—The total number of houses in the city is estimated to be nearly 30,000, and of these some 25,000 are occupied by the working classes. Compared with other large towns, the general character of the housing is fairly good, especially of the more modern dwellings, and there are many small gardens. Out of 5809 houses for the working classes inspected in 1919, 106 were overcrowded in respect of cubic space per head, and 458 had more than two persons per room. The health visitors paid 19,550 visits and revisits to houses, 5522 of them in connexion with the inspection in the schools. At their suggestion 95 houses and 1501 sick persons. The health visitors paid 2217 visits to the homes of the tuberculous, and found that 238 persons were cleansed. The health visitors found that 31.7 per cent. of affected persons had a separate bedroom, 14.1 per cent. had a separate bed in a double-bedded room, and no less than 54 per cent. shared a double-bedded room. Dr. Pattin considers that a decent standard of comfort and health providing for the erection of 1200 new houses, and is making strenuous efforts to get these provided, but there are great difficulties owing to the cost and scarcity of labour and materials. It is hoped to secure the erection of 500 houses by the end of March, 1921.

School medical work.—11,674 children were inspected in the schools, and there were 453 re-examinations. 2498, including 589 cases of ringworm, were found to need treatment, and at the end of the year 2169 had received it. In some cases treatment was delayed by the advice of private doctors, and in others not undertaken; this was notably the case in dealing with adenoids and tonsils. At the dental clinic 4339 children were attended to. 1197 damaged permanent teeth were repaired with fillings, and 4165 teeth were extracted. One dental officer is not, however, considered sufficient to cope with the work amongst 19,000 children.

On the whole, Norwich may be considered a healthy city to dwell in, especially in comparison with other manufacturing towns.

"The chief occupations of such of its inhabitants as have to labour for their livelihood," says Dr. Pattin, "are boot-making, mustard and starch making, brewing beer, galvanising iron-wire, motor-engine and aeroplane construction; cocoa and aerated water production; banking; life, fire and accident insurance; teaching and preaching. The boot-making industry contributes a noticeable amount of phthisical cases, especially amongst the 'clickers'; 1 attribute this largely to the bad mechanical attitude imposed upon these workers—stooping with arms forward and chest crumpled and retracted, and also to the apparent tendency of the less robust to drift into this branch of business."

The soil of the city is of a porous character, the higher levels being made up of glacial beds, through which the valleys have been excavated, exposing at their margins the crag formation and chalk, gravel, and alluvial deposits occupying the lower ground. The climate is relatively dry and bracing, and the rainfall low.

URBAN VITAL STATISTICS.
(Week ended Sept. 4th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 9.4, 9.9, and 9.9 in the three preceding weeks, rose to 10.0 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 9.7 per 1000, and coincided with that recorded in the previous week, while among the remaining towns the rates ranged from 4.2 in Gloucester, 4.8 in Gillingham and in Sunderland, 15.9 in South Shields, and 17.7 in Exeter. The principal epidemic diseases caused 255 deaths, which corresponded to an annual rate of 0.7 per 1000, and comprised 171 from infantile diarrhoea, 37 from scarlet fever, and 1 from measles and whooping-cough, 8 from infantile diarrhoea, which had increased from 87 to 150 in the four preceding weeks, enteric fever. The deaths from infantile diarrhoea, which had increased from 87 to 150 in the four preceding weeks, further rose to 171, and included 34 in London, 20 in Hull, 10 in Liverpool, and 6 each in Sheffield and Sunderland. The mortality from the remaining diseases showed no marked excess in any of the large towns. There were 2402 cases of scarlet fever and 1404 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2266 and 1391 at the end of the preceding week. The causes of 30 of the 3427 deaths in the 96 towns were uncertified, of which 7 were registered in Birmingham.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 12.3, 10.8, and 11.1 in the three preceding weeks, declined to 9.8 per 1000. The 206 deaths in Glasgow corresponded to an annual rate of 9.7 per 1000, and included 6 from infantile diarrhoea, 4 from whooping-cough, and 1 from diphtheria. The 55 deaths in Edinburgh were equal to an annual rate of 8.4 per 1000, and included a fatal case each of diphtheria and infantile diarrhoea.

Irish Towns.—The 109 deaths in Dublin corresponded to an annual rate of 13.7, or 1.6 per 1000 below that recorded in the previous week, and included 3 from infantile diarrhoea. The 97 deaths in Belfast were equal to an annual rate of 12.7 per 1000, and included 8 from infantile diarrhoea and 1 each from enteric fever and scarlet fever.

VITAL STATISTICS OF LONDON DURING AUGUST, 1920.
In the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease, it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 6.6 per 1000 of the population, estimated at

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING AUGUST, 1920.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHES.	Estimated civil population, 1919.	Notified Cases of Infectious Disease.										Deaths from Principal Infectious Diseases.										Deaths from all causes.	Death-rate per 1000 living.	
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other con- tinued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping- cough.	Enteric fever.	Diarrhoea and enteritis (under 2 years).	Total.			Annual rate per 1000 persons living.
LONDON	4,358,309	—	1321	671	—	22	—	31	151	10	5	2211	6.6	—	6	8	66	15	3	105	193	0.6	3101	9.3
West Districts:																								
Paddington	143,938	—	30	12	—	—	—	—	5	—	—	47	4.3	—	1	—	1	1	—	—	3	0.3	70	6.3
Kensington	157,886	—	51	14	—	1	—	—	3	—	—	73	6.0	—	—	—	2	—	—	—	10	0.8	138	11.4
Hammersmith	130,981	—	42	25	—	—	—	—	2	1	—	72	7.2	—	—	—	2	—	—	—	5	0.5	93	7.9
Fulham	152,543	—	70	27	—	—	—	—	5	—	—	105	9.0	—	—	—	1	—	—	—	1	0.2	48	10.3
Chelsea	60,573	—	4	5	—	—	—	—	4	—	—	29	3.0	—	1	—	—	—	—	—	1	0.1	67	6.9
City of Westminster	127,533	—	11	10	—	2	—	—	2	—	—	29	3.0	—	—	—	—	—	—	—	1	0.1	67	6.9
North Districts:																								
St. Marylebone	97,953	—	30	1	—	3	—	—	3	—	—	37	4.9	—	1	—	—	—	1	—	1	0.3	72	9.6
Hampstead	88,012	—	6	8	—	—	—	—	5	—	—	19	2.1	—	—	—	—	—	—	—	2	0.1	43	6.4
St. Pancras	210,434	—	54	44	—	1	—	—	6	—	—	107	6.4	—	—	—	2	—	—	—	15	0.6	220	8.9
Islington	323,034	—	82	21	—	—	—	—	8	3	—	176	7.1	—	1	—	8	—	—	—	6	0.5	47	12.0
Stoke Newington	50,994	—	14	11	—	—	—	—	1	—	—	27	6.9	—	—	—	2	—	—	—	6	0.7	116	7.0
Hackney	216,736	—	50	23	—	2	—	—	5	—	—	82	4.9	—	—	—	2	—	—	—	11	0.7	116	7.0
Central Districts:																								
Holborn	38,156	—	5	6	—	—	—	—	1	—	—	12	4.1	—	—	—	—	—	—	—	2	0.7	37	12.6
Finsbury	75,291	—	25	9	—	—	—	—	1	—	—	35	6.1	—	—	—	—	—	—	—	4	0.7	62	10.7
City of London	13,893	—	—	—	—	—	—	—	1	—	—	1	0.9	—	—	—	—	—	—	—	—	—	15	14.1
East Districts:																								
Shoreditch	98,134	—	35	17	—	—	—	—	3	—	—	52	7.4	—	—	2	—	—	—	—	8	0.9	103	13.7
Bethnal Green	110,085	—	71	41	—	—	—	—	2	—	—	127	15.0	—	—	2	—	—	—	—	1	0.8	99	6.7
Stepney	232,506	—	186	31	—	2	—	—	6	—	—	237	13.3	—	—	1	—	—	—	—	15	0.6	115	9.1
Poplar	153,644	—	102	57	—	—	—	—	1	—	—	168	14.3	—	—	1	—	—	—	—	15	0.6	141	12.0
South Districts:																								
Southwark	173,971	—	59	32	—	—	—	—	15	—	—	106	7.7	—	—	—	2	—	—	—	6	0.7	138	10.0
Bermondsey	124,239	—	74	14	—	1	—	—	1	—	—	99	9.9	—	—	—	—	—	—	—	4	0.6	98	10.3
Lambeth	282,322	—	60	31	—	—	—	—	1	—	—	102	4.7	—	—	—	—	—	—	—	17	0.8	230	10.6
Battersea	159,316	—	60	55	—	3	—	—	3	—	—	125	4.9	—	—	—	—	—	—	—	13	0.6	115	9.4
Wandsworth	333,693	—	66	42	—	—	—	—	8	—	—	117	5.6	—	—	—	—	—	—	—	10	0.5	183	8.7
Camdenwell	373,802	—	26	19	—	—	—	—	7	—	—	52	7.1	—	—	—	—	—	—	—	4	0.5	90	10.5
Deptford	111,206	—	24	9	—	2	—	—	4	—	—	39	5.2	—	—	—	—	—	—	—	1	0.1	66	8.7
Greenwich	98,484	—	31	15	—	—	—	—	8	—	—	50	3.9	—	—	—	—	—	—	—	5	0.6	113	10.0
Lewisham	167,754	—	18	14	—	—	—	—	1	—	—	44	4.2	—	—	—	—	—	—	—	—	—	81	8.0
Woolwich	136,237	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

4,358,309 persons; in the three preceding months the rates had been 6.3, 6.0, and 6.5 per 1000. Among the metropolitan boroughs the lowest rates from these diseases last month were recorded in Paddington, Chelsea, the City of Westminster, Hampstead, Holborn, and the City of London, Lewisham, Stepney, Poplar, and Bermondsey. The prevalence of scarlet fever was somewhat greater than in the preceding month; this disease was proportionally most prevalent in Fulham, Bethnal Green, Stepney, Poplar, and Bermondsey. The Metropolitan Asylums Hospitals contained 2251 scarlet fever patients at the end of the month, against 1671, 1674, and 1940 at the end of the three preceding months; the weekly admissions averaged 335, against 228, 251, and 284 in the three preceding months. Diphtheria was slightly less prevalent than in the preceding month; the greatest prevalence of this disease was recorded in Hammersmith, Islington, Hackney, Poplar, and Greenwich. There were 17 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 18, 19, and 24 at the end of the three preceding months; the weekly admissions averaged 3, against 3, 3, and 6 in the three preceding months. Erysipelas was proportionally most prevalent in Hampstead, the City of London, Bethnal Green, Stepney, Southwark, and Woolwich. The 31 cases of puerperal fever notified during the month included 4 in Stepney, 3 in Kensington, and 3 in Wandsworth. The 10 cases of cerebro-spinal meningitis included 3 in Islington; while the 5 cases of poliomyelitis belonged respectively to Hammersmith, Islington, Shoreditch, Bethnal Green, and Lambeth.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended August 25th the deaths of 3101 London residents were registered, equal to an annual rate of 9.3 per 1000; in the three preceding months the rates had been 12.4, 10.3, and 9.6 per 1000. The death-rates ranged from 6.3 in Paddington, 6.4 in Hampstead, 6.8 in the City of Westminster, 7.0 in Hackney, and 7.3 in Hammersmith, to 11.4 in Kensington, 12.0 in Stoke Newington, 12.0 in Poplar, 12.6 in Holborn, 13.7 in Shoreditch, and 14.1 in the City of London. The 3101 deaths from all causes included 193 which were referred to the principal infectious diseases; of these, 6 resulted from measles, 8 from scarlet fever, 56 from diphtheria, 15 from whooping-cough, 3 from enteric fever, and 105 from diarrhoea and enteritis among children under 2 years of age. No death from any of these diseases was recorded last month in the City of London. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Paddington, Chelsea, the City of Westminster, St. Marylebone, Hampstead, St. Pancras, and Greenwich; and the highest in Kensington, Shoreditch, Bethnal Green, Stepney, Poplar, and Lambeth. The 6 deaths from measles were 4 below the average number in the corresponding period of the five preceding years. The 3 fatal cases of scarlet fever were 1 more than the average; of these 2 belonged to Kensington and 2 to Bethnal Green. The 56 deaths from diphtheria exceeded the average by 20; the greatest proportional mortality from this disease occurred in Hammersmith, Islington, Stoke Newington, Bethnal Green, Poplar, and Lambeth. The 15 deaths from whooping-cough were 14 fewer than the fatal cases of these 3 diseases in the corresponding period of the five preceding years. The 105 fatal cases of diarrhoea were 61 below the average; the greatest proportional mortality from this disease occurred in Holborn, Finsbury, Shoreditch, Stepney, and Battersea. In conclusion, it may be stated that these principal infectious diseases were 35 per cent. below the average in the corresponding period of the five preceding years.

Correspondence.

"Andi alteram partem."

DR. MARCEL BLOCH ON COAGULATION.

To the Editor of THE LANCET.

SIR.—In the French Supplement to THE LANCET of August 7th a paper appeared by Dr. Marcel Bloch on the coagulation of the blood, and you have already commented on the surgical interest of his work in your issue of August 21st. Dr. Bloch puts forward his views as to the part played by calcium in the blood in the phenomenon of coagulation, and advocates a method of measuring the coagulability of the blood, which I may for clearness resume very briefly. His method is based upon dilution and inactivation of the calcium in the blood by means of a solution of sodium citrate. To various tubes containing equal quantities of citrated blood increasing amounts of a solution of calcium chloride are added, and the tubes showing commencement and end of coagulation noted. By means of this method pathological variations of coagulability have been determined. As a result of these observations Dr. Bloch has formulated a theory of the coagulation of blood, the prime factor in the process being calcium salts. It is well known that calcium is essential for the clotting of blood, but it appears from Dr. Bloch's paper that too much importance is given to the part played by calcium salts without any real evidence to support this claim.

It may fairly be assumed, in the present state of our knowledge, that some of the calcium is combined with the proteins in the blood, but I can find no evidence to support the view that it is all in this form. Further, there is no real evidence of the way in which sodium citrate prevents coagulation, and certainly less of the actual dose required to prevent coagulation. In an investigation of the calcium metabolism in certain bone diseases it has been frequently observed that the blood coagulates very rapidly, even when three times the usual amount of sodium citrate is added. Again, it is a noteworthy feature that the blood in alcoholism clots very readily; and here, again, sodium citrate is unable to prevent it. This increased coagulability of the blood is naturally beneficial in such cases, but certainly deserves attention when the donor in a blood transfusion has partaken of alcohol previously—a not uncommon occurrence if opportunities are provided. It is in just such cases that sodium citrate probably assists rather than retards coagulation, a fact which may further explain its observed toxicity. That the results produced were in any way due to impurities in the sodium citrate was negatived by the use of absolutely pure sodium citrate.

The same effects have been observed, when potassium oxalate is substituted for sodium citrate. Thus in certain cases coagulation occurs whether the calcium salts have been non-ionised by citrate or precipitated by oxalate. The effects of alcohol on the complement-deviation test are familiar, and in this case we know that the action is a purely physical one, and it is suggested that the same change occurs in the blood of alcoholics, or in persons who have consumed alcohol just previous to the test. The physico-chemical basis of coagulation has much to recommend it since we are dealing with a colloidal solution and associated electrolytes, such as calcium. The activation of the electrolytes is by no means as simple a process as we are led to believe, but it would appear that changes in the reaction of the blood may play a not inconsiderable part. The changes may possibly be of small dimensions, hence the necessity of using the most delicate physico-chemical methods for their detection. This is the present objective.

The very interesting hypothesis put forward by Dr. Bloch may be true, but I for one require further proof before accepting it as the only explanation of this relation of calcium to coagulation. There is still a considerable

amount of confusion due to the invention of a number of different names to various constituents taking part in the process of coagulation. It has the merit of simplicity, but all the recorded facts unfortunately do not fit in with such a view. It does not explain why certain blood samples coagulate even in excess of sodium citrate or potassium oxalate. Further, with experience of removal of blood for various analyses, it is well known that if too much citrate or oxalate is present the action of chemical coagulants is retarded and often incomplete. The action of non-ionised or inactivated calcium in such a medium is almost negligible, and leads one to suppose that the sodium citrate has a further action so far unexplained. The coagulation of the blood is of such importance as to warrant close attention, and further evidence along the lines already pursued by Dr. Bloch and others will be looked for eagerly.—I am, Sir, yours faithfully,
Sept. 6th, 1920. R. L. MACKENZIE WALLIS.

SMOKING AND OUTPUT: A SUGGESTION.

To the Editor of THE LANCET.

SIR,—In THE LANCET of July 17th you refer to the practice of permitting smoking in workshops, which seems to be gaining favour with employers. It is now stated that the practicability of permitting smoking in certain Royal dockyards is being considered by the Admiralty. Several manufacturing firms in Lancashire, especially in the Manchester area, have allowed their workmen to smoke during a certain period every day. After an experiment extending over several months the Vickers Metropolitan Co. have found that the permission to smoke for a short period daily under regulated conditions has increased the output, secured a more contented spirit among the men, and in general improved the efficiency of the workshops. Under conditions of strict prohibition it was found that the desire to smoke became so keen and overpowering that loitering in search of an opportunity for a surreptitious smoke was a common practice.

Another symptom of the clamour for official recognition of "smoking time" is the demand of students of the London County Council for permission to smoke at its evening classes. It is recorded that during the Great Plague in 1665 all the Eton boys were obliged to smoke in school every morning. During the war it was found that fatigue parties worked all the better, as did troops in training, when allowed a short time to rest and smoke. The effects on efficiency of a regulated well-timed smoking pause might well receive the attention of the Industrial Fatigue Research Board. If elusive entities of unknown chemical constitution, such as so-called vitamins or nutrines can exercise powerful effects on the human organism, there is much to be said for a thoroughly scientific investigation of the influence on the workers' daily "output" of the products of a drug of which at least some of the chemical constituents are known. A custom and solace, originally barbaric in origin, which has invaded all civilised countries and communities and is now practised by both sexes of humanity at practically all ages, must have some deep and far-reaching physiological and psychological significance.

I am, Sir, yours faithfully,
Manchester, August 30th, 1920. WM. STIRLING.

MIKULICZ'S DISEASE.

To the Editor of THE LANCET.

SIR,—The case of Mikulicz's disease reported by Dr. S. G. Askey in your issue of Sept. 4th reminds me that during the last four or five years I have seen three cases of the disease, all in white people, so that it is perhaps not so uncommon as might be supposed.

One case was that of a Greek lady about 60 years of age, whom I saw, in consultation with Dr. Alice Vance Knox of Highgate, some two or three years ago. There was a moderate painless enlargement of both parotids, and also of the submaxillary glands. Moreover, the parotids seemed at times to manifest some acute or subacute inflammatory

change, and when I saw the patient it was possible to squeeze a drop or two of thick clear mucus into the mouth from the unduly prominent orifice of Stenson's duct. But the symptom which was giving rise to most discomfort was the suppression of saliva. This, which, by the way, is not an invariable feature of the disease, was in her case absolute. Neither at meals nor at any other time was the patient's mouth even moistened with saliva, and the tongue, the lips, and the buccal surfaces of the cheeks were parched. As may readily be imagined, the discomfort resulting from the drying up of the secretion was very great. Salivary stimulants like sweets and acids only induced an aching or drawing sensation in the glands, and the patient had to be continually sipping water. In addition to the dryness of the mouth the conjunctivae also were dry, for there was a complete absence of tears, so that when she had occasion to weep that act had to be effected without the usual overflow from the eyes.

A second case is one which I saw a few months ago in a middle-aged Scotsman. Fortunately for him the secretions had not dried up, but the parotid glands were both enlarged, and for several years he had been subject in an even more pronounced form than the first patient to periodical attacks of inflammation in the enlarged glands, lasting for about ten days and then gradually subsiding. When I saw him he had just reached the end of one of these exacerbations and mucus-pus could be expressed from the duct. X-ray examination of the glands and ducts, by Dr. Robert Knox, failed to reveal any calculus. From the gland secretion his own medical man, Dr. G. MacLellan Blair, of St. John's Wood, N.W., has had a vaccine made, and he reports that the patient is very much the better for it. Potass. Iodid. is also being given.

The true nature of Mikulicz's disease is at present uncertain. The suggestion has been made that the enlargement of the glands may arise from a variety of causes. But while this may be admitted, nevertheless the participation of the lacrimal glands surely indicates that there must be some specific blood infection responsible for the changes. I am not aware whether the condition of the pancreas has been investigated. The disease is extremely chronic, and except for the objection felt by the patient to the fullness which the swellings impart to the face, and apart from such distressing symptoms as may be induced by the suppression of gland secretion, it does not seem to give rise to any serious phenomena.

I am, Sir, yours faithfully,
 London, W., Sept. 4th, 1920. DAN MCKENZIE.

P.S.—Since the above was written I have seen what looks like a fourth case of the same disease.

LEPROSY IN THE PHILIPPINES: A CORRECTION.

To the Editor of THE LANCET.

SIR,—In the annotation on Leprosy in India in THE LANCET of May 1st you record the impression given at the February Lepor Conference in Calcutta that the segregation of lepers in the Philippine Islands has given as wonderful results as were claimed for Sweden, Germany, Norway, and Iceland. But you will note from the following table of our Philippine Health Service, certified by the acting director, that the annual admissions in our leper colony for the last 14 years and 6 months have fluctuated within relatively narrow limits and afford no sufficient evidence that segregation has solved our problem.

Lepers Admitted and Remaining in Cullion Lepor Colony, 1906 to 1920.

Year.	Admitted.	Remaining.	Year.	Admitted.	Remaining.
1906 (July- Dec.)	802	515	1914	859	3022
1907	690	780	1915	555	3680
1908	1020	1126	1916	966	4251
1909	1378	1725	1917	615	4385
1910	930	2172	1918	973	4692
1911	839	2511	1919	551	4706
1912	864	2991	1920 (Jan- May)	225	4736
1913	795	3298			

I would like to invite your attention to a letter which I have recently addressed to Professor Milton J. Rosenau, of Harvard University, in connexion with a statement made in his book on "Preventive Medicine" regarding results of leper segregation in our islands. Rosenau admits that in the collections and segregations of lepers in Hawaii the results have been indifferent,

and that there must be considered some factor as yet unrecognized in the control and prevention of leprosy.

The erroneous impression that we are on the high road to a solution of our leper question might, if uncorrected, lead to neglect of further researches along other lines.

I am, Sir, yours faithfully,

JOSÉ ALBERT,
 Professor of Pediatrics; Member, Council of Hygiene,
 Philippine Health Service.

Manila, July 20th, 1920.

The letter from Professor Albert to Professor Rosenau contains the following passages:—

"I have taken the liberty to call your attention to what appears to be a misstatement in the last of two editions of your valuable and admirable book on "Preventive Medicine." I read that part of the Prevention of Leprosy Affecting these Islands (page 327) which reads: "In the Philippines segregation of all discoverable cases reduced new admission by 50 per cent."

I am enclosing a table given out by the Philippine Health Service, which sets forth all the yearly admissions in the Cullion Lepor Colony for the last 14 years and five months or since the institution of the drastic experiment of compulsory segregation. As may be seen from it, the rate of admission has never been reduced to any way near 50 per cent. at any one time. It is evident that in spite of the fact that many cases are hidden, yet the number of annual admissions has oscillated within relatively narrow limits, without any great noticeable decrease.

If we are to draw at all any conclusion from these figures, it would probably be in some way a conclusion similar to your statement for Hawaii that "segregation has so far had no effect upon the prevalence of the disease, and that there are factors in the control of leprosy not yet understood."

THE FRACTIONAL TEST-MEAL.

To the Editor of THE LANCET.

SIR,—The article by Dr. J. A. Ryle on the fractional test-meal in your issue of Sept. 4th raises afresh the question of the value of test-meals. Concerning the one-hour test-meal Dr. T. R. Brown, physician in charge of the gastro-intestinal clinic of the Johns Hopkins Hospital, wrote in 1916:—

"It was many many years ago that the absence of hydrochloric acid in the gastric juice was considered, if not diagnostic, at least extremely suggestive, of gastric carcinoma. To realise the error in this point of view, and to show that in the vast majority of cases achylia is present with benign conditions, one has but to mention its presence in a large series of cases."

The writer then proceeds to enumerate 13 groups in which achylia occurs. Not only is gastric carcinoma but one among many of the causes of this condition, but when this particular disease happens to be responsible for the achylia, the one-hour test-meal is of little value, for when hydrochloric acid is absent, the growth is inoperable.

Accordingly, while great advances were being made in the Röntgen diagnosis of diseases of the alimentary canal, the one-hour test-meal lost ground, because it failed to provide information leading to practical results at all commensurate with the difficulties of popularising among patients the old-fashioned stomach-tube. In institutions it hardly held its own with the X rays as a test of gastric motility. For example, in the Mayo Clinic in 1914 a series of 950 patients were examined both by X rays and the single test-meal and the results checked by subsequent operation. The X rays were found to provide the more sensitive test. It was in these circumstances that the view gained ground that the study of the gastric, pancreatic, and intestinal secretions added little, if anything, to the resources of the clinical worker.

We have therefore to inquire at the outset whether the fractional test-meal supplies something which the older method lacked that may win for it a permanent place in the laboratory. Now no stomach containing bismuth, barium, or a tube of any kind whatever is working under physiological conditions, but with Einhorn's tube this fallacy almost disappears, for the inconvenience to the patient is practically negligible. The fractional test-meal provides, then, a picture of the secretory function of the stomach and duodenum obtained under conditions which fairly approximate to the normal. Quite apart from questions of motility, if these secretory studies furnish data of value either in diagnosis or in treatment the case for this method is established. My estimation of the value of such observations of the secretory function throughout digestion and in the resting period is based upon a study of the

American literature, where since 1914 a great body of evidence has accumulated, and upon my experience of fractional test-meals during the past six months at St. Mary's Hospital.

The position is very fairly stated by Rehfuess and Hawk.¹ No extravagant claims are advanced; the method is a useful, if modest, addition to our means of investigation, and we surely have need of every measure that can in any way contribute to accuracy in diagnosis. Moynihan writes:—

"More mistakes are made in the diagnosis of gastric ulcer than in the case in any other abdominal disorder. If all the methods of examination are strictly brought to bear upon cases commonly referred to as those of gastric ulcer, it will be found that in the majority the diagnosis cannot be upheld."

This, apparently, is also the experience of the Mayo Clinic, for Smithies, in an article printed in June this year, states that only 53 per cent. of patients sent to hospital diagnosed as gastric ulcer turn out to be such.

The time, then, is not perhaps inopportune for advancing a plea that no stone should be left unturned in the quest for greater accuracy in gastro-intestinal diagnosis. The first fine careless rapture of our surgical brethren, inspired by the early and brilliant results of gastro-enterostomy, has passed. A more sober spirit is abroad. Many cases have been successfully relieved, others have now been followed from the time they leave the surgeon's hands, through a period of apparent cure, to the return, and often aggravation, of the old symptoms. There has arisen a feeling that more careful selection of cases for operation, based upon exhaustive investigations, must precede further advances, and that any measures which contribute to our knowledge of either motor or secretory abnormalities, with its implied knowledge of the limits of the normal must tend to avert a repetition of these failures. Dr. Ryle's article is a step towards that end.

Nevertheless, it is as well to continue our search for answers to ultimate questions in gastric and intestinal pathology along other lines. To quote the writer whose views open this letter:—

"An attempt to evolve a gastro-intestinal pathology fundamentally on the basis of secretory variations is to lean on a frail reed. The curve is only one of the many clinical data which does not furnish the answer itself, but which adds its little to the many other aids at our command in reaching a true conception of the underlying disease process."

I am, Sir, yours faithfully,
South Audley-street, W., Sept. 6th, 1920. C. M. WILSON.

THE PROBLEM OF DENTAL DISEASE.

To the Editor of THE LANCET.

SIR,—I read with pleasure your annotation under this heading in THE LANCET of August 21st. In this connexion may be mentioned some clinical observations made by me at the Luxor hospital for natives in Upper Egypt prior to 1914. Neither appendicitis nor gastric ulcer appeared among my cases, and cancer was rare. Though syphilis was widespread, yet I found no cases of aneurysm or of locomotor ataxy. As regards cancer, the absence of post-mortem examinations may vitiate my impressions of cancer incidence, but I never saw any kind of growth in a breast nor any cases of mammary abscess. My friend Dr. G. W. Ellacombe, of Livingstone, Northern Rhodesia, had similar experiences among his native patients.

I suggest that immunity from appendicitis and gastric ulcer depended on the nature of the diet, as a result of which, I claim, the population had good teeth. May the absence of gastro-intestinal cancer be due to this also? I would suggest to the Rockefeller Institute that the study of the diet and diseases of the country Arab as compared with his brother living in Cairo and Alexandria might be of value. Owing to the spread of flour-mills and sweet-shops the diet is rapidly changing, but it is still possible to study the native eating coarse wholemeal unleavened bread, and no sugar beyond the natural solution which he extracts from the fibrous cane and from other fruits.

A short time ago Professor J. G. Adami was reported to have stated that the teeth of the U.S.A. citizen were far better than ours. With the utmost respect, I

venture to doubt his statement. It is my belief that the teeth of American citizens are extensively diseased, and the very number and importance of their dental surgeons would seem to support my statement. Now that the U.S.A. have gone "dry," and in consequence still more "sweet," the dental surgeons and doctors will doubtless be busier than ever. The suggestion that 10,000 more dental surgeons are required in this country is also attributed to Professor Adami. I protest at being asked to pay for this expensive host of officials when the advanced disease which they are to scrape out and plug can be almost entirely prevented by common-sense feeding and discipline in the home. Dr. Sim Wallace and others have actually proved that prevention is simple and inexpensive. Dr. James Wheatley, medical officer of health for Shropshire, also has figures pointing to the improvement of the children's teeth under war circumstances which are arresting and which I trust he will publish. For example, the cow's milk is an entirely unnatural food for the human child, and its consumption in large quantities may have disastrous results to the children and sick people whose staple diet it has become. Just as alcohol in the form of wine, beer, or spirits does no harm, but in many cases positive good when taken in moderation, so it is with commercial sugar and with milk. There is far too much stress laid to-day upon heat calories and far too little upon the number and kind of meals necessary to exercise the teeth and keep the mouth clean and healthy. Much money and illness and many operations for gastric ulcer and appendicitis could be saved by putting the true facts about dental caries before the women of the country.

I am, Sir, yours faithfully,
W. E. NICKOLLS DUNN, M.B. Lond.
Brighton, August 30th, 1920.

Medical News.

A JOINT Conference of the Central Association for the Care of the Mentally Defective and the National Special Schools Union will be held at the Church House, Westminster, from Thursday to Saturday, Nov. 25th-27th. The Right Hon. H. A. L. Fisher is expected to address the opening session, at which Mr. Leslie Scott will preside. Sir William Byrne will be in the chair on the second day, and Dr. A. E. Eichholz on Saturday morning. Further information from the honorary secretary of the Central Association, Queen Anne's Chambers, Tothill-street, London, S.W. 1.

UNIVERSITY OF LONDON.—Preliminary arrangements for advanced lectures in physiology for the session 1920-21, details of which will be announced later, show a varied programme of courses to be delivered by distinguished physiologists:—

During the first term at King's College Dr. C. Da Fano will lecture on Histology of the Nervous System on Wednesdays, at 4.30 p.m. beginning on Oct. 13th.

At the University Buildings, South Kensington, Prof. A. D. Wallé (in conjunction with Mr. J. C. Waller) will give a course of eight lectures on Experimental Studies in Vegetable Physiology and Vegetable Electricity on Tuesdays, beginning on Oct. 12th.

During the second term Prof. M. S. Pembrey, at Guy's Hospital, will give eight lectures on the Physiology of the Embryo, Fetus, and Newly Born, on Thursdays, at 4.30, and Mr. J. A. Gardner will give a course on Bio-Chemistry (title and place not yet arranged).

In the third term a course of lectures by various lecturers, arranged by Prof. F. A. Bainbridge, at St. Bartholomew's Hospital and Prof. H. E. Roaf will give eight lectures at the London Hospital on Reception of Sensory Stimuli.

All these courses are recognised as advanced lectures which candidates for B.Sc. honours may name for part of his examination.

The following scheme of intercollegiate advanced work in physiology has been approved for the Honours B.Sc. Examination, and students of the participating colleges are free to attend all the courses:—

First term: Prof. W. M. Bayliss (University College), Physiological Chemistry in Relation to Physiology.

Second term: Prof. W. D. Halliburton and Dr. Rosenheim (King's College), Advanced Chemical Physiology; and Prof. M. S. Pembrey (Guy's Hospital), Practical Work on Respiration.

Third term: Dr. J. S. Edkins (Bedford College), Advanced Practical Histology; and Prof. F. A. Bainbridge (St. Bartholomew's Hospital), course of practical work on Electrical Changes in Skeletal and Cardiac Muscle.

Students requiring further information regarding the lectures should address their inquiries to the heads of the laboratories at which they will be delivered.

MANCHESTER ROYAL INFIRMARY.—The course of post-graduate lectures held last year is to be resumed; the first lecture of this session will be held on Tuesday, Oct. 5th. Details of the course will be published in our Medical Diary.

POST-GRADUATE STUDY FOR GENERAL PRACTITIONERS AT ST. ANDREWS.—A short course of post-graduate study for general practitioners will be given at the Clinical Institute, St. Andrews, under the direction of Sir James Mackenzie, commencing on Monday, Oct. 11th. The course, to which only a limited number of members will be admitted, will consist of lecture demonstrations dealing with the symptomatology of disease in its early stages, and will be supplemented by demonstrations on matters of clinical interest in anatomy, physiology, chemistry, bacteriology, ophthalmology, and radiology. The fee for the course is £10 10s. Graduates desirous of attending should communicate with the secretary, the Clinical Institute, St. Andrews, Fifeshire.

Professor J. Bretland Farmer, F.R.S., has been appointed a member of the Advisory Council to the Committee of the Privy Council for Scientific and Industrial Research.

At the last meeting of the Dursley (Gloucestershire) Rural District Council the medical officer of health reported that six cases of enteric fever had been notified in a family at Uley.

The West Suffolk Hospital at Bury St. Edmunds has decided to charge in-patients 10s. weekly. In addition to £5000 given by the Red Cross Society, £9000 will have to be raised locally for the reconstruction of the hospital.

The sum of £2000 has been raised for the Bollingbroke Hospital, Wandsworth Common, by the Balham and Tooting Traders' Association.

REQUEST OF A MEDICAL MAN TO HOSPITALS.—The late Mr. Edwin Allan Maling, consulting surgeon to the Sunderland Royal Infirmary, the Sunderland Eye Infirmary, and the Seapham Harbour Infirmary, who died on April 12th, left £500 to the Sunderland Royal Infirmary and £200 to the Sunderland and North Durham Eye Infirmary.

PRESENTATION TO A MEDICAL MAN.—At Penzance, on Sept. 1st, Dr. J. B. Page was presented by the local division of the St. John Ambulance Brigade with a silver cigarette box on the occasion of his leaving for New Zealand, as a mark of acknowledgment for his services as honorary instructor.

MEDICAL MAGISTRATES.—Dr. Sydney Garrett Vinter has been placed on the commission of the peace for the county of Cornwall. Dr. Arthur Briggs Dunne has been appointed a justice of the peace for the West Riding of Yorkshire. Dr. William Edmund Thomas has been placed on the commission of the peace for the county of Glamorgan.

St. Thomas's Hospital Old Students' dinner will take place at the Connaught Rooms, Great Queen-street, W.C., on Friday, Oct. 1st, at 7 o'clock for 7.30. The chair will be taken by Dr. Frederick Ford Caiger. Tickets, price 17s. 6d., can be obtained from the honorary secretaries at St. Thomas's Hospital.

At a recent meeting of the Axminster (Devon) Board of Guardians a letter was read from the Poor-law Medical Officers Association advocating the elimination of the appointment of part-time district medical officers and the appointment of whole-time medical officers; it was suggested that the board should have one full-time medical officer. The guardians did not consider it advisable to take any action in the matter.

DEVON V.A. HOSPITALS.—From 1914 to 1920 the number of patients admitted to the Devon V.A. Hospitals was 68,200. Of these, 45,475 were treated in V.A. hospitals and 12,725 in civil and private hospitals, as compared with 33,181 in Gloucestershire, 22,103 in Somerset, 21,100 in Dorset, and 6403 in Cornwall.

THE LATE DR. L. SHINGLETON-SMITH.—The death occurred recently of Lionel Shingleton-Smith of Brecon, in his forty-fourth year, from injuries caused by a motor-car collision. The deceased was the second son of Dr. R. Shingleton-Smith, of Clifton, Bristol, was educated at Bristol and Cambridge, and qualified M.R.C.S., L.R.C.P. in 1905, and M.B., B.Ch. in 1908. After holding the posts of junior house surgeon and casualty officer at the Bristol Royal Infirmary, and house surgeon at the South Devon Hospital, he set up in practice in Brecon, where he was very popular. He held several union and other appointments, and was honorary physician to the Brecknock County and Borough Infirmary.

EXETER DISPENSARY.—At a special meeting of the governors of the Exeter Dispensary held on August 26th it was decided, owing to the increasing deficit on the working of the charity, to make a charge to patients for such things as medicines and dressings.

ROYAL DEVON AND EXETER HOSPITAL.—A special meeting of the governors of this institution was held on August 26th, when it was decided to alter the rules so as to provide for a charge being made for in- and out-patients. It was also determined to alter the recent decision of the governors, and to use the second storey of the "Victory Wing" for the accommodation of nurses instead of for a children's ward. The children will be provided for by erecting a corridor or bungalow wing in the garden of the hospital. The adoption of this plan, towards which an anonymous donor has already given £500, will result in a saving of £5000.—Dr. J. Delprat Harris has been appointed honorary consulting medical officer to this hospital. Dr. Harris has been connected with the institution since 1881, when he inaugurated the electrical department, which has now been brought up to modern requirements.

THE LATE DR. R. P. MITCHELL.—Dr. R. P. Mitchell, who died recently in East Africa, had the distinction of serving with the South African Medical Corps on military service in East Africa for three years. Most of his professional career was spent in the Transvaal. He lived at Barberton from 1886 to 1891, when he went to the Rand, returning to Barberton 16 years later. Dr. Mitchell took a prominent part in the Jameson raid, and suffered imprisonment as a member of the famous Reform Committee.

BLIND PERSONS ACT.—This Act, which entitles blind persons to obtain, at the age of 50, a pension to which they would normally be eligible at the age of 70, comes into operation to-day. The Act is intended to apply to those who are so blind as to be unable to perform any work for which eyesight is essential. They must be natural-born British subjects who have resided in the United Kingdom since reaching the age of 30 for an aggregate period of not less than 12 years, and whose circumstances would render them eligible for old-age pensions if they were now 70 instead of 50 years of age. In the event of an appeal against the decision of the local pension committees as to whether a claimant fulfils the statutory condition of blindness, the Ministry may refer the case to a medical man for investigation.

THE LATE DR. G. BOWMAN.—In the death of Dr. George Bowman, whose funeral took place in Manchester on August 31st, the local community have sustained a distinct loss, even though he had given up active practice for some years on account of failing health. Born in 1843, George Bowman was the son of a practitioner of high repute in Old Trafford. He was educated at the School of Medicine in Manchester and at Edinburgh University, where he graduated M.D. in 1875, having qualified M.R.C.S. the previous year. He succeeded his father in practice, and was one of the quiet unobtrusive practitioners who are often, as in this case, among the most popular and successful in their districts. Dr. Bowman leaves a widow and two children.

The Services.

ROYAL NAVAL MEDICAL SERVICE: PAY OF RECRUITING OFFICERS.

By a revision of the salaries of officers engaged in recruiting for the Navy, notified in Admiralty Orders, medical officers engaged in the recruiting service receive £200 per annum, except the officer at Belfast, who will be paid £150 per annum.

TEMPORARY COMMISSIONS IN THE ROYAL ARMY MEDICAL CORPS.

In extension of the notice published in our columns on August 14th, the War Office is granting temporary commissions in the R.A.M.C. for a period of six months, for home service, to a limited number of medical men not over 55 years of age. Remuneration will be at the rate of £600 per annum for those who have not previously held commissions, and £650 for those who have served during the late war for a period of 12 months. In addition they will receive free rations or an allowance in lieu when rations are not issued in kind, and the regulated allowances and expenses when travelling on duty. An entitling allowance of £50 will be made to those to whom it has not been previously issued. Applications should be made at once in writing, to the Secretary of the War Office (A.M.D.), London, S.W. 1, and should contain a statement of the candidate's age and previous service, if any.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Cmdr. J. C. F. D. Vaughan is placed on the Retired List.

ROYAL ARMY MEDICAL CORPS.

Temp. Major N. G. Cooper to relinquish the acting rank of Lieutenant-Colonel.

Major C. R. M. Morris to be acting Lieutenant-Colonel.

Capt. W. Foot relinquishes the acting rank of Major.

The undermentioned temporary Captains relinquish their commissions and retain the rank of Captain:—W. H. Harvey, W. E. Fraser, A. S. Cook, J. M. Wallace, H. Harrison, A. R. Berrie.

Temp. Capt. C. W. Joynt relinquishes his commission.

Capt. J. McP. Mackinnon is seconded for service with the Egyptian Army.

The undermentioned Lieutenants (temporary Captains) to be Captains:—G. E. L. Simons, E. Parker, L. G. Blackmore, V. J. Bonavia, D. J. Batterham.

SPECIAL RESERVE OF OFFICERS.

The undermentioned Captains relinquish their commissions on account of ill-health contracted on active service:—C. A. McGuire (retains the rank of Major) and G. E. Shand (retains the rank of Captain).

TERRITORIAL FORCE.

Lieut.-Col. A. T. Falwasser resigns his commission and retains the rank of Lieutenant-Colonel.

Major H. G. Smeeth (late Major, R.A.M.C., Spec. Res.), to be Lieutenant-Colonel and to command 1st East Lancs Field Ambulance.

Capt. C. H. Vernon (late Royal Air Force Medical Service) to be Captain.

Major (acting Lieutenant-Colonel) W. F. Roe relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Capt. (acting Major) L. Beesley relinquishes the acting rank of Major on ceasing to be specially employed.

Cpts. W. W. Adamson and L. A. Williams resign their commissions and retain the rank of Captain.

Officers resigning their commissions and granted the rank of Major: Cpts. A. Anderson, C. S. P. Black, W. A. Brechin.

Capt. R. B. Lilly (late temporary Captain R.A.M.C.) to be Captain. 1st London General Hospital: Major L. B. Rawling is restored to the establishment.

3rd Northern General Hospital: Capt. G. S. Simpson is restored to the establishment on ceasing to hold a temporary commission in the R.A.M.C.

TERRITORIAL FORCE RESERVE.

Capt. C. T. Matthews resigns his commission and retains the rank of Captain.

ROYAL AIR FORCE.

Medical Branch.—The undermentioned are transferred to unemployed list: Capt. (acting Lieut.-Col.) A. P. Bowdler, Cpts. R. D. Jones and E. H. L. Le Clezio, and Lieut. R. I. Rhys.

Flying Officer G. H. H. Maxwell to be Flight Lieutenant.

INDIA AND THE INDIAN MEDICAL SERVICE.

Appointments.—Major L. Dunbar, R.A.M.C., to hold civil medical charge of Benares, vice Col. Walker, on leave. Capt. J. N. Turner, Agency Surgeon, Sibl. Capt. P. R. Vakil to hold civil medical charge of Roorkee, vice Capt. J. S. Martin. Capt. D. K. Sabhesan to hold civil medical charge of Roorkee, vice Capt. P. R. Vakil. Major P. C. Bedell, on return from military duty, to the charge of the Railway Dispensary, Moradabad. Capt. A. S. Fry, Medical Officer of Seistan Consulate. Major T. J. Carey Evans, Residency Surgeon, Mysore. Major H. H. Thorburn, Residency Surgeon, Baluchistan. Lieut. A. Innes Cox, to hold civil medical charge of the Allahabad District, vice Capt. L. A. P. Anderson. Major A. N. Dickson, to Peshawar. Major A. H. Proctor, First Resident Surgeon, Presidency Hospital, Calcutta.

Resignations.—Capt. P. S. Connellan has resigned his commission. Lieut.-Col. G. A. W. Hall retires from the Service. Major Norman White, Sanitary Commissioner to Government of India, retires, and has received an appointment with Ministry of Health, London. Lieut.-Col. Ashton Street, Principal of Grant Medical College, retires after 30 years' service.

Leave granted.—Lieut.-Col. H. J. Hugo, six months' leave. Lieut.-Col. J. W. Watson, eight months' leave. Major D. P. Goll, Civil Surgeon, Rajshahi, privileged leave for two months. Major W. D. Neal, Assistant to Superintendent, Medical College Hospital, Calcutta, six months' leave. Major V. B. G. Green-Armstrong, Resident Surgeon, Presidency General Hospital, Calcutta, six months' leave. Major D. Heron, Medical Officer, Seistan Consulate, eight months' leave. Lieut.-Col. W. Young, Civil Surgeon, Lucknow, six months' leave. Lieut.-Col. L. G. Fischer, combined privilege leave and furlough. Major N. H. Scott, Civil Surgeon, Peshawar, combined leave. Major C. McDonald, Civil Surgeon, Sibsagar, four months' combined leave. Major S. Chuckerbutty, Civil Surgeon, extended leave for five months. Lieut.-Col. J. W. D. McEwan, Principal Medical College, Lucknow, six months' leave.

PAY OF ARMY NURSES.

An Army Order just issued announces the new rates of pay and related pay of the Q.A.I.M.N.S. and of the permanent nursing establishment of the military families' hospitals, with effect from April 1, 1920. Briefly the new annual rates of pay are as follows: Matron, £115, rising by £10 yearly to £155; assistant matron, £85, rising by £5 yearly to £125; sister, £75, rising by £5 to £115; and staff nurse, £60, rising by £10 to £105. In addition, charge pay for the Q.A.I.M.N.S. will be at rates not exceeding £15 a year, and for matrons of military families' hospitals £20 or £30 a year. Retirees (with effect from April 1, 1920) will comprise a service element of £3 for each year of service and a rank element; but a pensioner with less than 10 years' service will not be eligible for retired pay. The maximum rates of these two elements together are as follows: Matron, £170; sister, £125; staff nurse or charge nurse, £105.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN, Hunter-street, Brunswick-square, W.O.

Post-Graduate Course on Venereal Diseases for Medical Women.

A Course arranged by the London (Royal Free Hospital) School of Medicine for Women, the Royal Free Hospital, the Elizabeth Garrett Anderson Hospital and the London Lock Hospital, for the instruction of qualified medical women in the Treatment of Venereal Diseases. The Course will extend over two weeks:

MONDAY, Sept. 13th.—12 noon, Lecture:—Mr. O. T. Dinlich:

Modern Treatment of Venereal Disease (at the London (Royal Free Hospital) School of Medicine for Women). 5 P.M., Mrs. Rorke, M.B.: Out-patient Cliniques for Women and Children (at the Royal Free Hospital, Gray's Inn-road).

TUESDAY.—9.30 A.M., Injections (at the London Lock Hospital, 233, Harrow-road, W.) 2 P.M., Mr. C. Gibbs: Lecture and Visit to Wards (at the London Lock Hospital, Harrow-road). 6.30 P.M., Dr. Ruth Balmer: Out-patient Cliniques for Women and Children (at the Elizabeth Garrett Anderson Hospital, 144, Euston-road, N.W.).

WEDNESDAY.—9 A.M., Dr. Morna Rawlins: Visit to Maternity Wards and Labour Department (at the London Lock Hospital, Harrow-road). 11 A.M., Dr. Mary Schofield: Pathological Demonstrations (at the Royal Free Hospital). 3.30 P.M., Mr. J. E. Lane: Lecture and Visit to Wards (at the London Lock Hospital, Harrow-road).

THURSDAY.—2 P.M., Mr. J. E. R. MacDonald: Lecture and Visit to Wards (at the London Lock Hospital, Harrow-road). 5 P.M., Injections (at the Royal Free Hospital).

FRIDAY.—10 A.M., Mrs. Rorke, M.B.: Treatment Ante-natal Cases (at the Royal Free Hospital). 5 P.M., Mr. J. J. Abraham: Injections and Out-patient Clinique for Women and Children (at the London Lock Hospital, 91, Dean-street, W.). 6.30 P.M., Dr. Ruth Balmer: Out-patient Cliniques for Women and Children (at the Elizabeth Garrett Anderson Hospital).

SATURDAY.—9.15 A.M., Injections (at the Elizabeth Garrett Anderson Hospital).

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Sept. 13th.—2 P.M., Mr. B. Harman: Eye Department.

2.30 P.M., Dr. A. Saunders: Visit to Medical Wards.

TUESDAY.—2 P.M., Mr. Banks Davis: Diseases of the Throat, Nose, and Ear. 2 P.M., Dr. Pernot: Skin Department.

WEDNESDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 2 P.M., Mr. D. Armour: Visit to Surgical Wards.

THURSDAY.—2 P.M., Dr. G. Stewart: Medical Out-patients. 2 P.M., Mr. B. Harman: Eye Department.

FRIDAY.—2 P.M., Dr. Burnford: Medical Out-patients. 2.30 P.M., Mr. Addison: Visit to Surgical Wards.

SATURDAY.—2 P.M., Dr. Owen: Medical Out-patients. 2 P.M., Mr. Sinclair: Surgical Out-patients.

Daily:—10 A.M., Ward Visits. 2 P.M., In-patient, Out-patient Clinics and Operations.

MALE LOCK HOSPITAL, Dean-street, W.

MONDAY, Sept. 13th, WEDNESDAY, and FRIDAY.—5 P.M., Dr. C. Russ: Demonstration of the Treatment of Gonorrhoea by Electrolysis.

Communications, Letters, &c., to the Editor have been received from—

- A.—Dr. A. Abrahams, Lond.;
Capt. V. R. S. Ayer, I.M.S., Karachi; Prof. J. Albert, Manila.
B.—Prof. J. Barcroft, Cambridge;
Dr. G. A. Brown, Glasgow; Dr. U. N. Brahmachari, Calcutta; Board of Scientific Societies, Lond.; Board of Control, Lond., Sec. of.
C.—Dr. W. Cramer, Lond.; Dr. H. P. Cholmeley, Forest Row; Central Association for the Care of the Mentally Defective, Lond.; Children's Country Holidays Fund, Lond.
D.—Dr. V. Dickinson, Lond.
E.—Prof. F. G. East, New Malden.
F.—Prof. J. E. S. Fraser, Lond.
G.—Lt.-Col. E. Goodall, Lond.; Capt. J. K. Gaunt, R.A.M.C.; Dr. W. H. Gregory, Boverley; Dr. L. H. Guet, Lond.
H.—Messrs. Handley Page, Ltd., Lond.; Prof. F. Hobday, Lond.; Mr. J. T. Henderson, Pietermaritzburg.
I.—India Office, Lond.
J.—Jamaica, Registrar-General of Spanish Town.
K.—Dr. W. N. W. Kennedy, Croydon; Miss M. Knightley, Lond.
L.—Dr. F. B. Leech, Manchester; Dr. R. B. Low, Lond.; Dr. C. Lillingston, Gorseston; Dr. T. L. Llewellyn, Newcastle; Dr. J. R. Lord, Dalkey; Liverpool, Medical Officer of Health of.
M.—Dr. D. McKenzie, Lond.; Dr. J. J. R. Meleod, Paisley; Medical Research Council, Lond.; Dr. R. S. Miller, Lond.; Dr. A. A. Mumford, Manchester; Dr. W. C. Mackenzie, Lond.; Dr. G. N. Meachen, Westcliffe-on-Sea; Ministry of Health, Lond.; Metropolitan Asylums Board, Lond.; Ministry of Agriculture and Fisheries, Lond.; Ministry of Pensions, Lond.; N.-National Anæsthesia Research Society, Columbus, Ohio.
O.—Dr. T. Orr, Lond.
P.—Messrs. G. P. Putnam's Sons, Lond.
Q.—Queen's Hospital for Children, Lond., Sec. of.
R.—Dr. E. T. Roberts, Glasgow; Mr. A. M. Rovin, Detroit.
S.—Prof. W. Stirling, Manchester; Stretford, Medical Officer of Health of; Dr. R. E. Smith, Barry; St. Thomas's Hospital, Lond.; Society of Medical Officers of Health, Lond.; Mr. T. G. A. Stephens, Swansea; Scientific Society, Manchester; Scientific and Industrial Research Dept., Lond.; Sir E. F. Schaffer, Cassis; Save the Children Fund, Lond.
T.—Dr. A. H. Thompson, Lichfield; Dr. W. D. A. Wood, Rugby; Dr. W. J. H. Wood, Southampton; Dr. C. Wallace, Lond.; Capt. J. T. A. Walker, R.A.M.C., Lond.; Dr. R. L. M. Wallis, Lond.; West London Hospital Post-Graduate College; Dr. K. M. Walker, Lond.; Dr. C. M. Wallace, Lond.; Dr. J. F. Wilton, Lond.; Dr. J. F. Walker, Hyde.

Appointments.

ALDOUS, G. F., F.R.C.S. Edin., has been appointed Consulting Surgeon to the Totnes Hospital, South Devon.
BOWDLE, A. C., M.B., Honorary Assistant Surgeon to the Royal Cornwall Infirmary, Truro.
CHAIK, T. (Dudley), Medical Officer of Health to Westslade Urban District Council.
GRANT, W. M.B., Ch.B. Edin., B.Hy., D.P.H. Durh., Medical Officer of Health to Eastaughton Rural District Council.
GILGORY, W. H., M.D. Edin., Medical Officer to Poor-Law Institution, Children's Home, Beverley and Tickton; also to Beverley Postal District.
STEVENS, D. C., M.D., M.S. Durh., F.R.C.S. Edin., L.R.C.P. Lond., D.P.H. Oxon., Assistant Medical Officer of Health and Chief Tuberculosis Officer, County Borough of Portsmouth.
THOMAS, R. E., M.D. Lond., B.S., M.R.C.S., L.R.C.P. Lond., D.P.H. Bristol, Assistant Medical Officer of Health, County Borough of Bath.

Vacancies.

For further information refer to the advertisement columns.
Aberdeen Royal Infirmary.—Jun. M.O. £500.
Aberdeen University.—Lectureship in Bacteriology.
Abercromby, Monmouthshire Asylum.—Jun. Asst. M.O. £300.
Ayr County Hospital.—Res. H.S. £120.
Ayr Sanatorium, Glenodon, New Cumnock.—Res. Asst. £250.
Barnsley, Beckwith Hospital and Dispensary.—Sen. H.S. £250.
Battersea General Hospital (Incorporated), Battersea Park, S.W.—Third Res. M.O. £200.
Bedford County Hospital.—Asst. H.S. £150.
Belgrave Hospital for Children, 1, Clapham-road, S.W.—Asst. F. 50 ss. Also Female S.S. £100.
Bethnal Green Infirmary, Cambridge-road, Bethnal Green, E.—Asst. Med. Supt. £500.
Birmingham General Hospital.—Surg. Registrar. £200.
Bottle County Borough.—Tuberc. O. and Dep. M.O.H. £750.
Bradford Royal Infirmary.—H.S. £200.
Brighton Education Committee.—Female Asst. School Doctor. £500.
Brighton, Royal-Sussex County Hospital.—Jun. H.S. £150.
British Guiana.—Asst. M.O.H. £600.
Cancer Hospital, Fetham-road, S.W.—Two H.S.'s. £150.
Central London Ophthalmic Hospital, Judd-street, St. Pancras.—H.S. £100.
Chester County Asylum.—Third Asst. M.O. £350.
Children's Infirmary, Cleveland-street, W.C.—Female Asst. M.O. £478.
City of London Hospital for Diseases of the Chest, Victoria Park E. 7.—H.S. £400.
Colchester, Essex County Hospital.—H.S. £200.
Colonial Service.—M.O.'s for West African Medical Staff, Government Service in Malaya, East African Protectorates, West Indies (including British Guiana), Fiji, and the Western Pacific, &c.
Derby, Derbyshire Royal Infirmary.—Asst. H.S. and Cns. O. £200.
Devon and Cornwall Sanatorium, Dulverthorpe, South Brent.—Locum Tenens. £65 ss. per week.
East Africa.—M.O. to C.M.S., Kavirondo.
Eastbourne, Princess Alice Hospital.—Res. M.O. £175.
Glamorgan County Asylum, Bridgend.—Jun. Asst. M.O. £350.
Govan District Asylum, Cardonald, Glasgow.—Jun. Asst. F. £325.
Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Asst. Anesthet. £25. Also Asst. Res. M.O. £150.
Hull, Sheffield Royal Infirmary.—Asst. H.S. £150.
Hull City Asylum, Waltham-road, Hull.—Jun. Asst. M.O. £300.
Hull Royal Infirmary.—Asst. H.S. £150.
Ingham Infirmary and South Shields and Westoe Dispensary.—Jun. H.S. £175.
Lancaster County Asylum.—Asst. M.O. £300.
Lincoln County Hospital.—Asst. H.S. £150.
Liverpool, Brownlow Hill Poor Law Hospital.—Res. Asst. M.O. £300.
London Lock Hospital, Soho, W.—Hon. S.
Manchester General Infirmary.—Res. H.S. £200.
Malden, Kent County General Hospital.—Jun. Asst. M.O. £300.
Maidstone, West Kent General Hospital.—Two H.S.'s. £220.
Manchester, Ancoats Hospital.—Res. Surg. O. £250.
Manchester Royal Infirmary, Barnes Convalescent Hospital, Cheetham.—Res. M.O. £300.
Manchester Royal Infirmary, Central Branch, Roby-street.—Res. M.O. £250.
Margate, Princess Mary's Hospital for Children, Cliftonville.—Jun. Asst. M.O. £515 6s.
Metropolitan Asylums Board.—Jun. Asst. M.O.'s. £515 6s.
Metropolitan Hospital, Kings-road, E.—Cas. O. and Res. Anesthet. £120. Also Asst. H.S. and Asst. H.P. £100 each.
Middlesex County Council, Harefield Sanatorium.—Res. Med. Supt. £700.
National Hospital for Diseases of the Heart, Westminster-street, W.—Out-pat. M.O. £150.
National Hospital for the Paralysed and Epileptic, Queen-square, Bloomsbury, W.C.—Registrar. £200. Also Sen. H.P. £150.
Newcastle-upon-Tyne City Mental Hospital, Gosforth.—Sen. Asst. M.O. £500.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Hon. Asst. S. Northampton General Hospital.—H.S. £200.
Nottingham City Education Committee.—Jun. Asst. Sch. M.O. £500.
Nottingham Royal Infirmary.—H.S. £250.
Nottingham Royal Infirmary.—Second Asst. M.O. £200.
Plymouth, South Devon and East Cornwall Hospital.—H.S. £200.
Preston and County of Lancaster Royal Infirmary.—H.S. and H.P. £150 each.
Prince of Wales's General Hospital, Tottenham, N.—H.P. and H.S. £200. Jun. H.S. and Jun. H.P. £120.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—H.S. £100.
Reading, Royal Berkshire Hospital.—H.P. and Second H.S. £200 each.
Royal Free Hospital, City-road, E.C.—Asst. M.O. £450.
Royal Free Hospital, Gray's Inn-road, W.C.—Female Obstet. H.S. £50.
St. Mary's Hospital, Paddington, W.—Med. Supt. £350.
Salford Royal Hospital.—Res. Surg. O. £250. H.P., H.S., Jun. H.S., and Cas. H.S. £150 each.
Scarborough Hospital and Dispensary.—Two H.S.'s. £150.
Scottish Board of Health.—Dist. M.O.'s. £1000.
Sheffield Royal Hospital.—Asst. Cas. O. £150.
Sheffield Royal Infirmary.—H.P. and H.S. for Ear, Nose and Throat. £150 each.
Sheworth University, Department of Pathology and Bacteriology.—Director. £300. Asst. Director. £500. Curator of Path. Museum. £500.
Southampton County Borough.—Asst. M.O.H. £500.
South London Hospital for Women, South, St. Olave Common, S.E.—Female Asst. S. Also Clin. Asst.
Surrey County Council, Urban District Council of Barnes.—M.O.H., &c. £800.
Surrey University, New South Wales, Australia.—Chair of Dentistry. £1100. Also Chair of Physiology. £1150.
Tatnell, Breconshire, South Wales Sanatorium.—Jun. Asst. Res. M.O. £300.
Uganda.—M.O. to C.M.S. Mengo Medical School.
Union Medical Hospital Service, South Africa.—Jun. Asst. F. S. £100.
Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £300. Also Locum Tenens. 7 ss. per week.
Westminster Hospital, opposite Westminster Abbey.—Asst. H.S. Westminster Sanatorium and Home, Meopham, Gravesend-Sands.—Res. Asst. M.O. to the Westminster Sanatorium and Asst. Tuberc. O. for Westminster. £350.
Worcester City and City Mental Hospital, Powick.—Jun. Asst. M.O. £350.

Births, Marriages, and Deaths.

BIRTHS.

ADAMS.—On August 28th, at Prospect House, Clitheroe, the wife of Dr. F. S. Adams, of a son.
AVERING.—On Sept. 2nd, at Chalk Hill, Banbury, the wife of Kenneth Avering, M.B., of a son.
BLOMFIELD.—On August 31st, at Cornwall-terrace, Regent's Park, the wife of Dr. J. Blomfield, O.B.E., of a son.
CONNAN.—On Sept. 1st, of 17b, Avonmore-road, W. Kensington, to Dorothy (McIntosh), wife of Donald Murray Connan, M.B., B.S.—a daughter.
HEALD.—On Sept. 2nd, at Kilmington, near Welwyn, the wife of Lieutenant-Colonel C. B. Heald, C.B.E., M.D., of a daughter.
LITNOWN.—On August 30th, at The Close, Tetbury, the wife of Major E. R. Litnown, R.A.M.C., M.R.C.S., L.R.C.P. Lond., of a son Clifford John.
MC CREERY.—On Sept. 2nd, at Huntly, Parkstone, Dorset, the wife of Major A. T. J. McCreery, M.C., M.B., B.Ch., B.A.O. Dub., R.A.M.C., of a daughter.
PAYNE.—On Sept. 4th, at Warrington-road, Llandaff, the wife of Dr. J. Rowland Payne, of a daughter.

MARRIAGES.

DEWAR-D'ALMEIDA.—On Sept. 7th, at St. Nicholas Church, Abingdon-on-Thames, by the Rev. H. A. Kennedy, M.A., vicar, assisted by the Rev. R. C. MacKeown, M.A., Robert Scott Dewar, M.A., M.B., Ch.B., Glasgow, to Roubaix, elder daughter of Mr. H. G. W. d'Almeida, The Square, Abingdon.
EDWARDS.—On Sept. 2nd, at Christ Church, Lancaster-terrace, W.C., by the Rev. George Browne, M.C., Allen Conliffe Esq., M.C. (with two bars), M.R.C.S. Eng., L.R.C.P. Lond., Major (late R.A.M.C.) to Vera Primrose Binnell, elder daughter of Mr. and Mrs. Alfred Binnell, Penrance, Cornwall.
REES—HUGHES.—On Sept. 2nd, at the Parish Church, Maidstone, by the Rev. Charles L. Hughes, vicar of Woodhouse, Sheffield, assisted by the Rev. Canon Harcourt, vicar of the parish, William Arthur Rees, M.D., F.R.C.S., son of the late F. W. J. Rees, I.C.S., and Mrs. Rees, of Swanage, Dorset, to Olive Carr, second daughter of the late Henry A. Hughes, and Mrs. Hughes, of Maidstone.
SUTTONS—GRIBBS.—On August 28th, at St. Mary's, Bryansford-square, by the Rev. S. N. L. Ford, M.A., Captain W. H. Sutton, R.A.M.C., L.R.C.P., L.R.C.S. Ed., attached to Royal Army, to Madeleine Ella, younger daughter of Mrs. W. H. Gibb, Pinner-road, Harrow.

DEATHS.

ALBAN.—On Sept. 3rd, in London, after an operation, Evan Alban, M.D. St. And., M.R.C.S. Eng., F.R.S., of Aberystwyth, Cardiganshire, and formerly of Landfield, Somerset, aged 72 years.
FARMAN.—On August 27th, at Tormedean, Aberdeenshire, Cyril Henry Farmman, M.B., Ch.B., B.S. Lond., M.R.C.S. Eng., L.R.C.P. Lond., L.D.S. R.C.S. Eng.
HARRIS.—On Sept. 1st, at Eastbourne, Frederick Robertson Harris, J.P., of Epsom, Surrey, from heart failure, while on a NOTT.—On August 28th, at the Encaidine, Arthur Holbrook Nott, Lieutenant-Colonel, Indian Medical Service (retired), of 22, Drayton Court, London, S.W., second son of the late William Nott, of Devon, aged 53.
PASLEY.—On August 26th, at Port Harcourt, Nigeria, Cleod John Pasley, M.B., M.R.C.S. Eng., L.R.C.P. Lond., L. Colonial Medical Service, Captain, R.A.M.C.
N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

HEALTH TEACHING IN THE UNITED STATES: PROFESSOR SEDGWICK'S LECTURES AT CAMBRIDGE.

By SIR G. SIMS WOODHEAD, K.B.E., V.D., M.D., LL.D.,
PROFESSOR OF PATHOLOGY, UNIVERSITY OF CAMBRIDGE.

DURING the early part of the present Long Vacation Course the Cambridge medical students and others interested in the advancement of sanitary science and public health were privileged to hear something of the methods of sanitation employed, and of the health work now being carried on in the United States of America. After a recent visit to the United States a former vice-chancellor, Sir Arthur Shipley, arranged for Professor W. T. Sedgwick, of Boston, professor of biology and public health at the Massachusetts Institute of Technology, to visit Cambridge, attend lectures, and deliver a short course on the organisation of the United States Public Health and other sanitary services, and on the means adopted for education and training in these matters not only of public health officers and sanitary engineers but of the general public.

University and Technological Education in the United States.

In five lectures on this subject Professor Sedgwick set out clearly and concisely the important bearing of study and research on the organisation of public health services in America. Pointing out that England was the cradle of public health and sanitation, Professor Sedgwick stated that our local public health authorities had, in the first instance, assumed responsibilities that the State had failed—or had been unwilling—to shoulder, and that in America the development of sanitation had followed on much the same lines. In Germany, instead of beginning at the periphery of the system, they had attempted from a bureaucratic central organisation to build up and control a comprehensive public service and to lay down by line and rule the duties both of doctors and of the people. The central authority assumed powers and responsibilities that in Anglo-Saxon communities had early been acquired by local bodies. Only later had centralisation been adopted in the United States in order that general interests might be protected and common action taken in large areas, as, for example, in the matter of the protection of a river running through several States.

Dealing with impure water-supplies and their rôle in the production of typhoid and cholera, Professor Sedgwick emphasised the fact that organisms other than those producing cholera and typhoid sometimes accounted for more deaths than do water-borne typhoid germs, and referred to Mr. Allen Hazen's observation that for every death from typhoid resulting from infection through water two or three deaths occur from diseases such as paratyphoid, diarrhoea, and enteritis. Many cases of acute diarrhoea recover, others succumbing with alarming rapidity. In the United States the skilled layman appears to have played a much more important part in the advancement of preventive medicine and sanitation than he has been encouraged to play in this country. Sanitary engineering and public health problems are handled not only by laymen specially trained as health officers, but by medical men whose interest in what may be termed "bed-side medicine" is comparatively slight. There has thus grown up a corps of sanitary officers of great value. One advantage of this system is that the clinician, whilst benefiting by the experience of the sanitary officer and utilising it to the full in his everyday work, need have no fear that the sanitary officer, who claims to be trained only in the preliminary science branches of medicine will feel called upon or competent to interfere in the diagnosis and treatment of the medical practitioner's private patients.

Laymen as Sanitary Officers.

The Massachusetts Institute of Technology, combining forces with the Medical School and the University of Harvard, was the first school in America to make any systematic attempt to train health officers, sanitary inspectors, and engineers. It was "an assembled school" in which a lecture on chemistry here, a lecture on physiology there, with a few special lectures added or thrown in, was deemed sufficient to serve the purpose. Later a more prolonged and complete course was provided. This was attended by medical men, of course, but also by graduates in science and engineering, who soon constituted a useful body of health officers for American towns. From this source have also been supplied sanitary workers in China, Fiji, and elsewhere.

members of a skeleton sanitary corps in the U.S. army and skilled men ready to undertake, under the American Red Cross, crusades against tuberculosis and other infective and parasitic diseases, not only at home but abroad, wherever the interests of America are involved or its sympathies aroused. Now, however, the good work has spread to the Johns Hopkins University, which up to 1918 had no adequate school of public health, but has since built up the most advanced and complete Public Health School in the United States. In 1914 the Rockefeller Foundation, realising the lack of trained personnel, and the fact that men who had passed through the ordinary medical curriculum were mostly neither qualified to deal with, or really interested in, public health, made arrangements to found at the Johns Hopkins University in Baltimore a well-equipped and fully endowed School of Hygiene, Preventive Medicine, and Sanitary Science which, though working with the medical department, should be separate from it. For the teaching at the Harvard Medical School and the Massachusetts Institute of Technology there was no endowment—nothing but the goodwill of certain professors and the students' fees—£50 a year from each of the few students. Now all this is being altered, and at Baltimore special departments are being planned, each to be placed under some distinguished teacher or organiser. Professor W. H. Welch, the well-known pathologist of the Johns Hopkins Medical School, has resigned that position to take up the duties of principal and director of this new school, and Dr. William H. Howell, professor of physiology and formerly dean of the Medical School, has accepted the post of assistant director. These appointments, were there nothing else, indicate the estimate formed by the highest educational circles of the new public health school. Up to June last only one student had graduated in public health from the Johns Hopkins School, but in Boston, with its enthusiastic personnel though smaller resources, some 50 candidates have already been trained in public health and sanitary science, and have graduated from the Harvard Technology School in these subjects. In both schools an attempt is being made to educate experts or leaders in sanitary investigation, organisation, and education. The schools are being fully equipped and staffed by a combination of the best organisers and teachers in the country. Professors of pathology, bacteriology, preventive medicine, biochemistry, physiology, engineering, hygiene, and the like are being appointed. Experts are dealing with biometrics and vital statistics; industrial hygiene; practical public health work and laboratory methods; social and mental hygiene; social service work in the people's homes and at the hospital; the nature and prevention of communicable diseases; parasitology and epidemiology; applied hygiene; immunology and serology; the principles of nutrition and the analysis of foods; sanitary engineering and allied subjects. Similar schools are to be founded and developed in San Francisco, New Orleans, and Chicago, and Professor Sedgwick points out that with such a nucleus already exists there is no reason why a strong public health school of the same type should not be built up in Cambridge.

Propaganda Work.

One thing came out very clearly in Professor Sedgwick's lectures; our American brethren take a much more comprehensive view of the duties of sanitary and hygiene school than do we in this country. In these schools they have developed a service for the education of the public, and lecturers and teachers are sent out trained to hand on to the public the elements of general and personal hygiene. For example, in connexion with the educational division of the American Commission for the Prevention of Tuberculosis in France, Professor S. M. Gunn (an American of Irish stock) has organised travelling exhibitions and "poster" services including open windows, personal bathing and cleanliness, care of the teeth, and so forth. In their work in France the Commission had been content to popularise and organise knowledge already acquired, much of which was due to the effort and research of French medical men and scientific investigators, which were second to none in the world. There was, however, in that country a lack of co-ordination and co-operation of public authorities and of public health education and it was this education and co-ordination that the American Commission had attempted to bring about.

As an example of the kind of public health work that is now being initiated and carried on in the United States, the Health Bulletin with the motto "The Health of the People: The Beginning of Happiness," published by Dr. F. P. Dunn, the health officer of Brookline, Massachusetts, a copy of which is sent out to every household in Brookline, was instanced. Professor Sedgwick explained that all manner of common-sense advice is given in this bulletin. The necessity of attention to small details is urged most strongly; the principle causes of death of Brookline residents are given and means of prevention suggested; the "wear and tear" diseases are described. The author advises that "a medical examination every year is the best kind of life assurance." He points out how some of the

deaths from pneumonia and influenza could have been prevented. Of cancer he asks: "Can it be cured?" "Tuberculosis," he says, "is preventable." "Why, then, were there 23,000 deaths from this disease in Brookline?" "Elies are filthy," "there are no substitutes for milk," and the milk supply should be the best obtainable," milk record, analysis, and reports on the milk sold in Brookline are given. "We've to publish similar records and reports in this country, actions for libel might ensue." "Food hints" are given, and specimen "low cost diets" for a family of five, with recipes, are included. Health maxims and aphorisms are quoted, and striking and easily remembered alliterative phrases given: "To Elies, food, and fingers" "Dirt, diarrhoea, and dinner" "Flu cure is the cry of the past, to prevent is the need of the future" "Health is easier kept than regained," and so on.

Professor Sedgwick said that the bulletin afforded some indication of the kind of work that had been and is being carried on by officers of health, whether medical men or laymen, in the United States.

In a letter from the State Commissioner of Health of Virginia to Professor Sedgwick Dr. E. G. Williams says:—

Before the reorganization of the State Board of Health the appropriation by the Legislature for two years was \$8000. Now you will notice from the Budget that the appropriation for the two years is a little short of one million dollars. Typhoid has been reduced from approximately 15,000 cases the first year of our work to 3500 last year. We hope it will not be many years before it will disappear.

Professor Sedgwick said that lectures, illustrated by lantern slides, posters, diagrams, and circulars dealing with public health education, were given all over the States. This showed what and what more could be done. He quoted a lecture on "rudimentary work on consumption," wherein the history of the development of a successful sanatorium was traced, and the methods employed with excellent results were described. It was pointed out in the lecture that, as in other sanatoriums, only by training in useful and carefully regulated work could the patients be interested and encouraged, their moral raised, and the disease checked.

Professor Sedgwick's own work as a teacher in training health officers and in connexion with the Massachusetts State Board of Health, his researches on the protection and purification of water-supplies and the purification of sewage, are amongst the most important carried out in recent years, and his contributions to epidemiology in the tracing and stamping out of endemic and epidemic diseases are of national value. We are grateful to him for his coming to his old home and ripe for a sentence, and to his colleagues for sparing him to us for a part of their University session.

INDUSTRIAL BLINDNESS.

The returns of the civilian after-care department of the National Institute of the Blind show Lancashire to have 4202 sightless persons as compared with 2593 in Yorkshire. This difference is largely due to the character of the industries carried on in the two counties. Mining and steel industries are both highly dangerous occupations, especially with regard to the eyes of the workers. In spite of the attention given by the local authorities to the prevention of such injuries, it appears that the number of those who have lost their sight from industrial causes has increased during the last 10 years. On the other hand, the compulsory notification of ophthalmic neonatorum has resulted in a great diminution of infantile blindness.

PUBLIC HEALTH AT CAPETOWN.

The population of the city of CapeTown was estimated to number 172,650 on Dec. 31st, 1918, no increase having occurred during the previous twelve months, the deaths indeed (7692) having exceeded the births (5432). There has been no complete census enumeration since 1911; the European population was estimated at 89,700 in December, 1917, and this estimate is considered to hold good for the next year. The period for which Dr. A. Jasper Anderson, medical officer of health to the city, presents his report is the twelve months ending June 30th, 1919, which he describes as "undoubtedly the blackest year in the annals of the city with regard to the health of its people. The extremely severe epidemic of influenza in October, 1918, has vitiated all the health statistics, and renders all comparisons with previous years fallacious."

The general birth-rate was 31.86 per 1000, that for Europeans being 24.59, and for non-Europeans 39.76, as compared with 44.27-44 and 44.32, the ratios for 1918. The general death-rate was 45.86, that for Europeans being 26 and for non-Europeans 67.45; when corrected for visitors these ratios become 42.33, 22.78, and 63.74 respectively. The European male death-rate was 25.42, and that for females 20 per 1000. In the month of October the deaths numbered 4589,

out of the year's total of 7890; this, when compared with the 255 deaths in October of the year preceding, gives some idea of the influenza visitation. The infant mortality ratio was 224·37 per 1000 births, compared with 152·23 in 1918; for Europeans these ratios were 114·69 and 79·24; October and November were particularly fatal to the new-born infants, 415 dying in these two months out of the total 975 during the year. There was great variation in the different wards of the city as regards the infant mortality; among European babies 291 per 1000 born died in Park ward (No. 2), but only 42 per 1000 in Kalk Bay (No. 14); among non-European babies 397 per 1000 died in Mowbray and 179 in Park ward; this slaughter of the innocents is therefore to a great extent preventable.

Infectious Diseases.

There were 444 cases of *enteric fever*, of which 234 were among Europeans (2.61 per 1000), with 25 deaths; 85 of these cases occurred in Woodstock and Salt River wards, together with 59 among non-Europeans, making a total of 144 cases in these two wards, which have no drainage system and are overcrowded. *Tuberculosis* was notified (or discovered) in 709 fresh cases (of whom 129 were Europeans), compared with 830 (of whom 134 were Europeans) in the previous year; the death-rate for Europeans was 0.84 per 1000 compared with 0.87 in 1917-18). *Influenza* reached Capetown in November, 1918, and came to an end in the last week of October, 1919, caused 4041 deaths, of which 961 were among the European residents, the death-rate being 10.7 per 1000 for Europeans, 37.4 for natives, and 23.4 for the whole population. Vigorous and successful measures were taken to deal with the epidemic, and inoculation with a polyvalent vaccine was used with good effect. The composition of this vaccine was: *B. influenza* (Pfeiffer) 200 millions, streptococci 1000 millions, and pneumococci 800 millions per c.c.m., with a dosage of 0.25 c.c.m.

Strenuous efforts for the extermination of mosquitoes continue to be carried out on the usual lines, and "many inhabitants have expressed their appreciation of the comfort derived from the diminution of the annoyance caused by this insect." Rat-catching is also carried out systematically, 6079 having been destroyed in the course of the year. It is noteworthy that only 17 cases of measles, and not a single case either of small-pox or of scarlet fever, occurred in Capetown during the two years, July 1st, 1917, to June 30th, 1919.

The report is fully illustrated by tables and diagrams. It might be suggested that the ward-populations be stated, so that the relative incidence of infectious diseases, &c., in various parts of the city might be ascertained. The mere statement of the number of cases or deaths does not show comparative severity of incidence.

FOOD CONTROL IN GERMANY.

A PARAGRAPH appears in the *Economic Review* (Sept. 3rd) which affords an interesting comparison of the food control position in Germany in certain directions with that in this country. It is as follows:—

An outcry for the release of bread and foodstuffs from Government control is making itself loudly heard. It is stated in the technical organ, *Die Mühle*, that while 25.40 per cent. of the price of 100 kg. of rye goes to the farmer, the Government absorbs 32.60 per cent., mostly in the futile expenses of the official apparatus of control. Bread is now Mk.1 per lb., as against 12 Pfennig before the war, yet the Government operations show a yearly deficit of Mk.47, millions. It is pointed out, however, that the hundred-weight of foreign grain costs Mk.500 to 600, and that the present price of bread in Germany is considerably below its value in the world market.

Germany has, no doubt, pushed the policy of subsidising essential foods much on the lines pursued by our Government, and the withdrawal of that policy must, at all events for a time, tend to advance prices. It is to be hoped that the harvests this year will show a good return, and so help to ease the situation.

ANNIVERSARY OF COMMERCIAL AVIATION.

SINCE the Handley Page Pioneer Commercial Air Service was inaugurated a year ago the London to Paris service has been established, so as to necessitate a custom house on the London to Paris road, aerodrome. A Royal air mail service from London to Holland was started on July 6th, and another to Belgium on July 19th. In August London was linked up to Berlin, Hamburg, Bremen, Warnemünde, Malmö, Copenhagen and Christiania via Amsterdam. During the period from July 25th to August 31st inclusive 648 passengers were carried on these services. The total number of parcels carried was 1,220, and the total weight was 2263, Sept. 2nd, 1919, to August 31st, 1920. The total weight was 2263, the freight and mail amounted to 142,975 lb., and the distance covered was 213,350 miles. Goods carried ranged from valuable jewellery, samples of goods, to babies' cradles, heavy electricals, and machinery weighing a quarter of a ton in one piece. Livestock included cats, dogs, fowls, and rabbits. Letters can be sent by air to Paris or Brussels merely by marking them "By Air Mail" in the top left-hand corner and affixing 21. per cent extra in stamps.

A POISON IN MENSTRUAL BLOOD.

H. Schick, in the *Wiener Klinische Wochenschrift*, No. 19, 1920, records that a bunch of roses held for some time in the hand of a menstruating woman drooped and faded within 24 hours. It appears that the injurious effect on cut flowers of contact with this particular woman had been known to others and some experiments were made on the supposed menstrual poison which is designated by the name "menotoxin." The action is not one common to all women during menstruation. The anemone seems specially susceptible to the supposed poison—this flower held in the hand for 10 minutes by the person experimented on faded in four hours, and the effect was most marked during the first 24 hours of menstruation. Even the activities of yeast in dough were said to be affected. The medium of the assumed poison is the sweat. If the flowers were held in the hand encased in an indiarubber glove they were unaffected, nor were they affected by being vigorously breathed on or by the saliva. A swab of the sweat taken from the axilla or palm of the hand placed in a vessel of water containing flowers acted on them in the same way as did contact with the hand. The serum of the menstruating individual was inactive, while the blood-clot was markedly poisonous. Menstrual blood itself has proved to be highly poisonous to flowers and twigs; its poisonous activities were not affected by heating to 56° C., and were only slightly weakened after heating to 100° C.

ANÆSTHETICS IN VETERINARY SURGERY.

In his presidential address recently delivered at Bristol before the members of the Mid-West and South Wales Veterinary Association Mr. W. M. Scott, F.R.C.V.S., pleaded for organisation in the veterinary profession to attain the objects which all veterinary surgeons desired. The Animals (Anæsthetics) Act, recently added to the statute-book, had lost at the eleventh hour its most important clause—namely, that no anæsthetic should be administered unless by a duly qualified veterinary surgeon. The object of the promoters of the Bill had been to obliterate surgical pain. Could anyone, he asked, imagine anything more incongruous than the empiric, who had had no collegiate training, administering an anæsthetic to produce complete anæsthesia? Imagine a human being chloroformed by a barber! The animal might have a whiff of chloroform, but who was going to prove that the operation was painless? Mr. Scott added with regret that the unqualified element which resisted the Bill was a stronger and better organised force than that representing the veterinary profession itself.

DRY CELLS AND BATTERIES.

Messrs. Siemens Brothers and Co., Ltd., of Woolwich and Palace-place-mansions, Kensington Court, W., have just issued a new and enlarged edition of their catalogue of dry cells. The list is a very comprehensive one, the number of types and sizes manufactured at their factories exceeding 600. The applications are, of course, numerous; but amongst the cells described are those adapted for medical work, such as galvanisation, faradisation, ionic-medication, galvanocautery, exploring lamps, and so forth. The portability of these cells is an obvious advantage in medical practice. The list includes also specifications of "inert" cells, which may be stored, it is claimed, for an indefinite period in any climate without undergoing deterioration. The cell is rendered active by the addition of water. This form of cell offers a clear convenience.

EYESIGHT AND SHOOTING.

The anxiety of the Germans about the good shooting of their army, their determination that all soldiers should have their errors of refraction corrected by "shooting spectacles," and that breakages, if they occurred, should be immediately replaced are well brought out by Major R. A. Fenton in the *Military Surgeon* (Washington, D.C., U.S.A.) for July. An "optical chest," holding 203 pairs of lenses and 84 empty spectacle frames, was carried by every division and even up into the front line. Men with uncommon defects had a duplicate pair of lenses supplied them before leaving Germany (the prescription was pasted into their pay books), and the medical officers of their units were responsible that the spare glasses were on the men or replaced. German anemeters wore special spectacles inside their gas masks, but Americans wore theirs outside. The German lenses were 2 mm. in diameter, the American 40 mm., which made the awkwardness when the United States army captured German stores and wanted to use the spare lenses found in their own spectacle frames. The lenses were very often fixed to diminish distortion in the periphery of the field. Loss of useful service of soldiers whose spectacles were broken was considered at headquarters to be so important that replacements in the optical chest were demanded immediately by post and by post issued from headquarters in Germany directly. We have little doubt that our army had no such detailed arrangements for helping anemeters.

STERILISED HORSE SERUM.

The treatment of anæmia by the internal administration of horse serum has been studied in France. The serum is also a hæmostatic agent applicable in external and internal hæmorrhage. Dr. Émile Weil has lately mentioned it in this connexion (*THE LANCET*, August 7th, p. 300). Hæmostyl (L. Preud'Homme, 21, Rue d'Aumale, Paris) appears in three forms: (1) fluid in ampoules; (2) syrup; and (3) tablets. Samples have recently been submitted to us. It is stated that hæmostyl is collected from young and healthy animals frequently bled, each drawing being carried out at a time when the horse is at the maximum point of blood regeneration. The treatment is based on the idea of "la rénovation sanguine." There is an extensive bibliography on the subject, published in Paris, Lille, Montpellier, Bordeaux, and elsewhere, and a paper by P. Carnot is quoted entitled, "Thérapeutique des syndromes hémorragiques" (*Rapport au XIII^e Congrès français de Médecine*, Octobre, 1912). The use of horse serum in sepsis is referred to also in an annotation in *THE LANCET* of June 12th, 1920, p. 1279. Samples of hæmostyl may be obtained from Messrs. Wilcox, Jozeau, and Co., 49, Haymarket, London, S.W.1.

ROYAL EARLSWOOD INSTITUTION FOR MENTAL DEFECTIVES.

We congratulate the board of management of this benevolent institution on its relief from financial embarrassment owing to a bounteous bequest from an old supporter, which will enable the clearing off of a bank overdraft amounting to £20,000, "contracted largely owing to the conditions prevailing during the great war," as well as the carrying out of much-needed improvements delayed through lack of funds. The seventy-third annual report of the institution, from which we take this gratifying information, shows that over 4000 cases have participated in the benefits of the establishment since its foundation in 1847, benefits not confined to the inmates themselves, but affording incalculable relief to families burdened with a mentally afflicted member. Earlswood has all along ministered to the needs of various social ranks and conditions, and now that public provision by local authorities and the State is to be made more largely under the Mental Deficiency Act the board of management contemplates an extension of the scope of usefulness of the institution to the needs of the professional and middle classes, impoverished as they are by present financial conditions, so as to entitle them to consideration in the scheme of charitable aid for mental defectives. Experience has shown that in the majority of cases permanent supervision is desirable, and the fact that more than half of the inmates of Earlswood are now over 20 years of age, and that 72 were on Dec. 31st, 1919, 45 years and upwards (three being over 75), shows that this desideratum has not been overlooked, though still capable of extension. At the same time, in order to secure the best results from training early admission is essential, and the proportion of those admitted last year under 14 years of age was 65 per cent., amongst them three infants under 5. From the report of the medical superintendent (Dr. Charles Caldecott) for 1919 we glean the following particulars. The aggregate of cases under care during the year numbered 522 (339 males, 183 females), and the average number in residence 446 (280 males, 166 females). Of 67 cases admitted, 11 were classed as idiots, 50 as imbeciles, 1 feeble-minded, and 1 moral imbecile. Eight were "Mongolians," 2 hydrocephalic, 9 epileptic, and 10 paralytic. Of 37 patients discharged, 30 were notified as "improved." Fifty deaths occurred during the year, 15 attributed to influenza, 13 to various forms of tuberculosis, and 4 to senility (the oldest aged 76). Post-mortem examinations were made in 34 cases. The death-rate, equivalent to 11.2 per cent. on the average number resident, is more than double that occurring in pre-war times, and Dr. Caldecott states that during the last three years there have been severe epidemics and unusual debility due, he thinks, to unfavourable war conditions, such as restrictions of diet and interference with normal lighting and ventilating arrangements necessitated by D.O.R.A. regulations. He considers, however, that, in view of the proportion of inmates normally requiring hospital care being at least 25 per cent., infirmary additions are called for, and he suggests balconies for open-air treatment.

The report contains interesting details as to the instruction of the patients, both at school and in a variety of useful indoor and outdoor industries. In such an institution there must needs be also much of medical interest, and we are glad to find that facilities for the clinical study of mental deficiency are afforded to students of metropolitan hospitals and post-graduate classes.

Dr. G. K. Audrey has been appointed chief assistant medical superintendent to the institution.

The offices of the Director-General of Medical Services, Ministry of Pensions, have been transferred to the Crown Agents' Annexe, 5, Millbank, Westminster, London, S.W.1.

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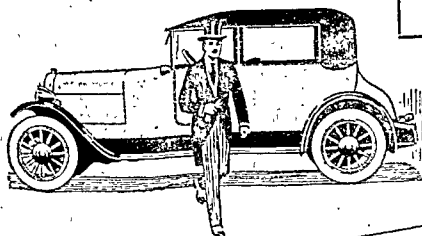
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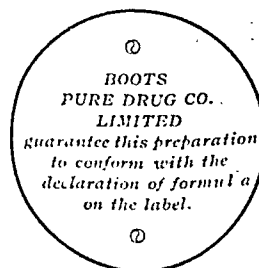
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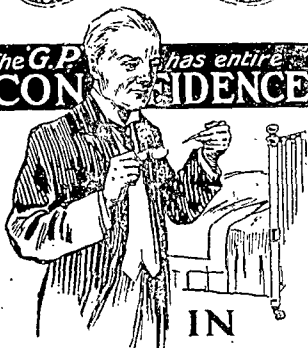
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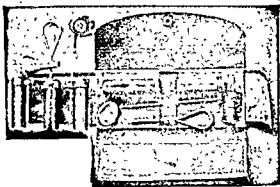
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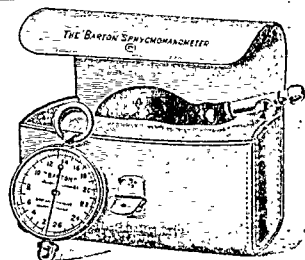
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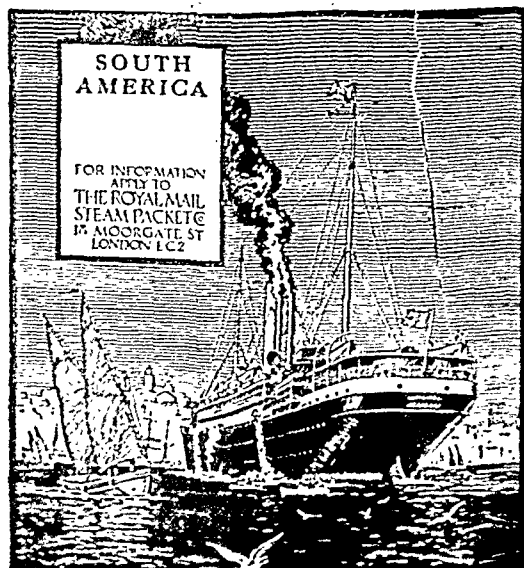
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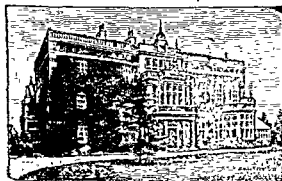
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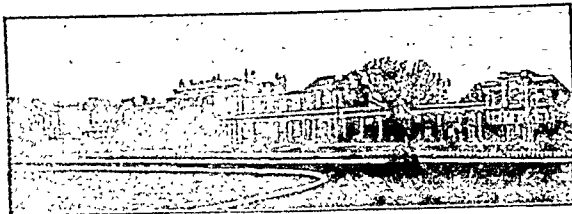
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The Public are warned that the full benefits of the treatment for Rheumatism and kindred complaints CAN ONLY BE OBTAINED IN THE NATURAL BRINE BATHS AT DROITWICH, FOR WHICH THERE IS NO SUBSTITUTE. LOVELY HOLIDAY DISTRICT. GOOD HOTELS, &c. Illustrated Booklet Post-free from Baths Manager, J. H. HOLLIER, 45 Sea Breeze Offices, Droitwich (Worce.). SPECIAL FACILITIES TO MEDICAL MEN

The Pines **AROSA** Switzerland

Small English Pension run on Sanatorium lines.

Appl. Mrs. DONNER (late of Villa Gentiana).

Reference by permission to Dr. E. C. MORLAND.

For COMFORT and HEALTH Visit
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HEALTH RESORT for
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In 1919: 19,508 Visitors, with 953,223 Days
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Best results in the treatment of acute
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Affections of the Lungs, chronic bronchial
catarrh, pleurisy with residual exudate,
asthma nervosum, scrofula, chlorosis,
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on the DAVOS PUBLIC INTERESTS ASSOCIATION,
AYOS-PLATZ, THOS. COOK & SON, or THE OFFICIAL
AGENCY OF THE SWISS FEDERAL RAILWAYS, 11b, Regent
Street, London, S.W.1.

THE ASSOCIATION OF
**CERTIFICATED
BLIND MASSEURS**

President—

Sir ARTHUR PEARSON, Bart., G.B.E.

A large London hospital specializing in neuro-
logical cases employed a blind head masseur and
four blind soldiers trained by St. Dunstan's. In
addition to massage, electrical treatment was given
by these blind masseurs, all treatments being carried
out under the supervision of the medical staff, and
to the entire satisfaction of the M.O. in charge.

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BRADFORD.—Mr. H. Ferrand, 171, Gladstone-street, Bradford
Moor.

CHELTENHAM.—Mr. S. Gohoun, Segrave, Park Place.*

CINDERFORD.—Mr. G. M. Barnes, St. Annals.

EAST DEREHAM.—Mr. A. V. Allen, Beech House.

* Clinics.

ALL ENQUIRIES FOR MASSEURS & MASSEUSES
SHOULD BE ADDRESSED TO:—

The Secretary, THE ASSOCIATION OF CERTIFICATED
BLIND MASSEURS,

224-6-8, GREAT PORTLAND STREET, W.1.

*Phone: MAYFAIR 4102.

Third Resident Medical Officer for
General Work in Main Hospital, &c. Doubly qualified. Com-
mencing £200, all found. Bachelor's quarters. Reply, in first
place, enclosing copies of three recent testimonials, to Secretary,
A. V. HOSPITAL, BATTERSEA GENERAL HOSPITAL (Incorporated),
Battersea Park, S.W.11.

City of London Hospital for Diseases
of the CHEST, Victoria Park, E.2 (bus, tram, and rail, Cambridge
Heath).—Applications for the post of HOUSE PHYSICIAN, with
copies of recent testimonials, are invited to be sent to the undersigned.
The appointment will be for six months. Salary at the rate of £100
per annum, with board, residence, and laundry provided.
GEORGE WATTS, Secretary.

National Hospital for the Paralyzed
and EPILEPTIC, Queen-square, Bloomsbury, W.C.—A vacancy
will shortly occur for a REGISTRAR. The salary is £200 per annum.
A candidate must be Fellow or Member of the Royal College of Phy-
sicians of London, or undertake to become a Member within six months
of appointment.

Particulars may be obtained from the Secretary, to whom applica-
tions should be sent not later than September 25th.

National Hospital for the Paralyzed
and EPILEPTIC, Queen-square, W.C.—A vacancy will shortly
occur for a SENIOR HOUSE PHYSICIAN. The salary is £150 per
annum, with board and residence. Applications, accompanied by
three recent testimonials, should be sent to the Secretary on or before
September 25th.

St. Mary's Hospital, Paddington, W.—

A vacancy is about to occur in the office of MEDICAL SUPER-INTENDENT. Salary, including "pension" for household, £350 per annum. Candidates must not be more than thirty-five years of age, must be qualified both in Medicine and Surgery, and have held the post of Resident Medical Officer to some general hospital. The appointment is for one year, the holder being eligible for re-election for a second and third term.

Applications to reach the undersigned not later than Saturday, 25th September.

THOMAS RYAN, Secretary.

South London Hospital for Women,

South Side, Clapham Common, S.W. 4.—The Board of Management invite applications from fully qualified Medical Women for the post of ASSISTANT SURGEON, also CLINICAL ASSISTANTS (Medical and Surgical) for the Out-patient Department, 86/9, Newington Causeway, S.E. 1. Full particulars may be obtained from the Secretary.

Applications, with copies of testimonials to be sent to the Secretary at the Hospital not later than first post on September 25th.

The London Lock Hospital, 91, Dean-

street, W. 1.—HONORARY SURGEON to Out-patients. Candidates for this appointment are requested to send in their applications, with not more than three copies of testimonials, to the Secretary, at 253, Harrow-road, W. 9, not later than September 14th, 1920.

The election, which is by ballot of the Governors on the 21st October, 1920, will be duly announced to the candidates. No personal canvassing of the Board or Medical Staff permitted. Candidates must be Fellows of the Royal College of Surgeons (Eng.).

By order of the Board.

H. J. HASON, Secretary.

The Prince of Wales's General

HOSPITAL, Tottenham, N. 15.—Applications are invited for the following posts, vacant on the 15th October next:—

HOUSE PHYSICIAN. £200 per annum.

HOUSE SURGEON. £200 per annum.

JUNIOR HOUSE SURGEON. £120 per annum.

JUNIOR HOUSE PHYSICIAN. £120 per annum.

With residence, board, and laundry.

The appointments are from 15th October to 15th April, 1921.

Candidates (male) must be duly qualified and registered, and applications, together with copies of three recent testimonials, to be sent to me on or before Tuesday, the 23rd September next.

September 7th, 1920.

FREDK. W. DREWETT, Director.

The Metropolitan Asylums Board

Invite applications for appointment as JUNIOR ASSISTANT MEDICAL OFFICERS in the Infectious Hospitals Service. Candidates must be unmarried and must be duly registered and qualified by law to practise both Medicine and Surgery in England. Junior Assistant Medical Officers are subject to annual re-election. Salary £255 6s. per annum (including war bonus). Assistant Medical Officers are required to reside in the institutions. The charge for board, lodging, and washing is £130 per annum. The remuneration is subject to statutory deduction under the provisions of the Poor-law Officers Superannuation Act, 1836.

Forms of application may be obtained from the Clerk to the Metropolitan Asylums Board, Embankment, E.C. 4, and must be returned to him as soon as possible.

Belgrave Hospital for Children

(Incorporated).

Clapham-road, S.W. 9.

The Committee of Management invite applications for the post of HOUSE SURGEON, which will become vacant on the 30th September. Applicants (Ladies) must be fully qualified and registered.

The appointment is for six months, with board, residence, and washing provided. Salary £2100 per annum.

Applications, with copies of testimonials, to be forwarded on or before 15th September, to the undersigned, from whom further particulars may be obtained.

By order.

THOMAS CLAPHAM, Secretary.

The Belgrave Hospital for Children

(Incorporated), 1, Clapham-road, S.W. 9.—The Committee of Management invite applications for the post of ASSISTANT PHYSICIAN. Candidates must be Graduates in Medicine of an English University, and Fellows or Members of the Royal College of Physicians of London. There is an honorarium of fifty guineas per annum attached to the post. Applications, with copies of testimonials, must be delivered to the undersigned by the undersigned, from whom further particulars may be obtained.

By order.

THOMAS CLAPHAM.

Metropolitan Hospital, Kingsland-

road, E. 9.

There are vacancies for the following, viz.:—

(1) CASUALTY OFFICER and RESIDENT ANESTHETIST. Salary £1200 per annum, with board, residence, &c.

(2) ASSISTANT HOUSE SURGEON. Salary £1200 per annum, with board, residence, &c.

(3) ASSISTANT HOUSE PHYSICIAN. Salary £1200 per annum, with board, residence, &c.

Appointments are for six months from 1st October, 1920.

Candidates must possess a registered Medical and Surgical qualification of the United Kingdom. Canvassing disqualified.

Applications, with copies of testimonials and a certificate of ability to administer Anesthetics from a school of a recognized school, to be in the hands of the undersigned not later than September 17th, 1920.

GUY B. DALL, Secretary & House Governor.

The Royal Chest Hospital, City-road,

E.C. 1.—Tuberculosis Dispensary.—Wanted, an ASSISTANT MEDICAL OFFICER (non-resident) for this Department. It is a whole-time appointment with a salary of £450 per annum. Applications, stating experience, with copies of testimonials, to be sent to the Secretary by September 15th, 1920.

By order.

A. T. MATY, Secretary to the Council.

Westminster Hospital, opposite

Westminster Abbey.—There is a vacancy in the office of ASSISTANT HOUSE SURGEON. The appointment is until the 31st October, non-resident, but board provided, to be followed by six months as House Surgeon, with board and lodging in the Hospital. Candidates must be registered Medical Practitioners, and applications should be sent to the undersigned.

SIDNEY M. QUEKNELL, Secretary.

Plaistow Fever Hospital.—Second

ASSISTANT MEDICAL OFFICER required. Appointment will be for six months. Salary at the rate of £200 per annum and war bonus in accordance with scale of Civil Service award, with residence, board, and laundry. Good facilities for a man studying for the D.P.H.

Applications, with copies of three recent testimonials, to be sent to The Medical Superintendent.

Plaistow Fever Hospital, London, E. 13.

Hospital for Consumption and

DISEASES OF THE CHEST, Brompton, S.W.—The Committee of Management invite applications for the post of ASSISTANT ANAESTHETIST to the Hospital. Candidates, who must be registered Medical Practitioners, are requested to send in applications and testimonials not later than Thursday, 21st October, 1920.

Honorarium £25 per annum.

Brompton, September, 1920

FREDERICK WOOD, Secretary.

Hospital for Consumption and

DISEASES OF THE CHEST, Brompton, S.W.—The Committee of Management invite applications for the post of ASSISTANT RESIDENT MEDICAL OFFICER. Candidates, who will be required also to undertake the duties of a House Physician, must be registered Practitioners, and must have held a resident Hospital appointment for six months. Salary £150 per annum, with board and residence.

Applications, with testimonials, to be sent in on or before 21st October, 1920.

Brompton, September, 1920.

FREDERICK WOOD, Secretary.

The Cancer Hospital (Free) Fulham-

road, London, S.W. 3.—The Committee are prepared to receive applications for the appointment of TWO HOUSE SURGEONS.

Salary £150 per annum each.

The appointment is for six months and subject to rules, a copy of which may be obtained from the Secretary.

Applications, with copies only of three testimonials, to be sent to the undersigned not later than Monday, 20th September, 1920.

J. COURTNEY BUCHANAN, Secretary.

The Queen's Hospital for Children,

Hackney-road, Bethnal Green, E.—HOUSE SURGEON for Casualty duty required from 1st November. Six months' appointment.

Salary £1000 per annum, with board, residence, and washing. Candidates (Men or Women) must possess a Medical and Surgical qualification.

Applications, with copies of testimonials, should be sent as soon as possible to

Telephone: Dalston 305. Sept. 3rd, 1920.

T. OLKSTON KERR, Secretary.

Bethnal Green Infirmary.—Assistant

MEDICAL SUPERINTENDENT.—The Guardians invite applications for the post of Assistant Medical Superintendent of their Infirmary, Cambridge-road, Bethnal Green, E. 2, at an inclusive salary of £500 per annum, with furnished apartments, board, and washing.

The Infirmary is a recognized Training School for Nurses, with accommodation for 169 patients, and possesses an X-ray apparatus and a fully equipped laboratory. The medical staff consists of five medical men.

The appointment will be subject to the sanction of the Ministry of Health, and the candidate appointed will be required to devote his whole time to the duties.

Applicants must possess a Medical and Surgical qualification, and must be duly registered. Preference will be given to a candidate who has had experience in Bacteriology and Practical Pathology.

Applications must be made upon forms, to be obtained from the undersigned, and should be returned to reach him not later than the first post on the 15th September, 1920.

G. FAULKNER JONES, Clerk to the Guardians.

Administrative Officer, Bethnal Green, E. 2, 6th September, 1920.

Matron.—The Battersea Borough

Council require the services of a fully qualified and experienced Matron for their Maternity Home, Wandsworth Common. The person appointed must have had previous administrative experience in a recognized Maternity Hospital or Home, and must be capable of understanding and supervising the training of midwives and maternity nurses, taking and supervising the training of midwives and maternity nurses.

The salary of the appointment is £150 per annum, with board and residence. Applications, stating age, qualifications, and experience, should be sent to the Medical Officer of Health, marked "Matron," by 12 noon Monday, 27th September.

W. MARCUS WILKINS, Town Clerk.

Town Hall, Battersea, Sept. 1st, 1920.

Central London Ophthalmic Hospital,
Judd-street, St. Pancras. There is a vacancy for **HOUSE SURGEON**. Applications, with testimonials, from duly qualified candidates must be sent to the Secretary on or before Monday, the 27th of September. Candidates must attend at the Hospital on Monday, October 4th, at 4 p.m. Salary at the rate of £100 a year, with board and residence in the Hospital. H. R. S. DRUCE, Secretary.

Royal Free Hospital, Gray's Inn-road,
W.C.1.—Applications are invited from duly qualified and registered Medical Women for the post of **OBSTETRIC HOUSE SURGEON**. Salary £50 per annum, with residence, &c. The duties include attendance during certain hours in the Casualty Department. Intending candidates should make application, stating age, qualifications, on or before the 25th inst. Duties to commence the 1st October, 1920. REGINALD R. GARRATT, Secretary.

Assistant Medical Officer (Lady)
A required temporarily at the **CHILDREN'S INFIRMARY**, Cleveland-street, W.C. (under the Metropolitan Asylums Board), 231 beds. Salary at the rate of £175 per annum, with war bonus (present rate £101 14s). The Assistant Medical Officer appointed will be required to reside in the Infirmary, and to pay for board, lodging, and washing (present charge £150 per annum). Must be experienced in administration of Anesthetics and in Diseases of Ear and Throat. Forms of application may be obtained by sending stamped addressed to the Clerk, Metropolitan Asylums Board, Embankment, London, E.C.4, by whom applications must be received not later than 10 A.M. on Monday, 20th September, 1920.

National Hospital for Diseases of the HEART, Westminster-street, W.1.—**OUT-PATIENT MEDICAL OFFICER**.—The Committee invite applications for the above post. The appointment is for a period of six months from 1st October, 1920, and may be renewed for a further similar period. Salary at the rate of £150 per annum. The Out-patient Medical Officer will be required to assist in the Out-patient Department at five afternoon Cliniques weekly, commencing at 2 P.M. (not Saturdays). Candidates, who must be registered Medical Practitioners, should send their applications to the undersigned not later than 27th September, 1920, with copies of not more than three recent testimonials. ROBERT G. E. WHITNEY, Capt., Secretary.

Macclisfield General Infirmary (80 beds).—Wanted by October 1st, **RESIDENT HOUSE SURGEON**. Salary £200 per annum, with board and residence. Applicants must have had experience in the administration of Anesthetics, also in Refraction Eye work, for which fees may be received. Applications, stating age, qualifications, and copies of testimonials, to be sent to the Secretary.

Parish of Liverpool. — Resident ASSISTANT MEDICAL OFFICER wanted for the **BROWNLOW HILL POOR LAW HOSPITAL**, Liverpool. The officer appointed will be required to devote the whole of his time to the duties, and to recognize the authority of the Visiting Medical Officers and the Select Vestry. Salary at the rate of £300 per annum plus a bonus of £50 per annum, together with rations, &c. The appointment (determinable on any date by one calendar month's notice on either side) will, in the first instance, be for one year or for such shorter period as may be agreed, and be open for renewal at the expiration of that time for such further period and subject to such conditions as are then decided upon. Applications, in candidate's own handwriting, stating age and qualifications and enclosing copies of testimonials, to be sent forthwith to the Clerk to the Select Vestry, Parish Offices, Brownlow Hill, Liverpool.

City of Nottingham Education Committee.—Applications are invited for the post of **JUNIOR ASSISTANT SCHOOL MEDICAL OFFICER** at commencing salary of £50 per annum.

Preference will be given to candidates producing evidence of experience in—

- (a) Administration of Anesthetics;
- (b) Estimation and Correction of Errors of Refraction; and
- (c) Treatment of Children's Affections.

Applications (which should be made on special forms to be obtained from the Senior Medical Officer, School Clinic, 35, Clarendon-street), should reach me not later than September 25th.

Personal canvassing for the post will be considered a disqualification. W. J. ABEL, Clerk.

Education Office, South Parade, Nottingham.

Brighton Education Committee.—Appointment of a **LADY ASSISTANT SCHOOL DOCTOR**.—Applications are invited for the above appointment. Other things being equal, preference will be given to a candidate who has had experience in (1) the work of the School Medical Service; (2) X-ray treatment of tumours; (3) ear, throat, and eye work, including refractions and the treatment of adenoids. A Lady School Doctor will act under the supervision of the School Medical Officer, and will be required to devote her whole time to the duties of the Local Education Authority. She will not be allowed to undertake private practice. Salary £250 per annum. Forms of application may be obtained from the undersigned, and completed should be returned not later than the 25th September, 1920. F. HENKENS TOYER, Secretary. Education Office, 54, Old Steine, Brighton, 8th September, 1920.

Derby Borough Mental Hospital.—**ASSISTANT MEDICAL OFFICER** required, Male, single. Salary £350 per annum, with board, apartments, and laundry. Subject to the provisions of the Asylums Officers Superannuation Act, 1909. Apply, with copies of three recent testimonials, to the Medical Superintendent.

Northampton General Hospital.—**HOUSE SURGEON** required. Salary £200 per annum. Board, residence, washing, and attendance provided. Applications, stating age, qualifications, &c., with copies of testimonials, to be sent to the undersigned. 2nd September, 1920. C. S. RISHER, Secretary-Superintendent.

Worcester County and City Mental Hospital, Powick.—Wanted, a **JUNIOR ASSISTANT MEDICAL OFFICER**, unmarried. Salary £350, with board, furnished apartments, washing, and attendance, subject to deductions under the Asylums Officers' Superannuation Act, 1909. Apply, with copies of testimonials, to the Superintendent.

Newcastle-upon-Tyne City Mental Hospital, Gosforth, Newcastle-upon-Tyne.—Wanted, **SENIOR ASSISTANT MEDICAL OFFICER (Male)**. Previous asylum experience essential. Salary £500 per annum, with furnished apartments, board, and laundry, subject to deductions under the Asylums Officers' Superannuation Act. Form for application may be had from the Medical Superintendent.

Glamorgan County Asylum, Bridgend.—**JUNIOR ASSISTANT MEDICAL OFFICER** required. Commencing salary (after deductions according to the Asylums Officers' Superannuation Act, 1909) £350, rising to £400 by annual increments of £25, with board, apartments, washing, and attendance. Applications, stating qualifications, age, and nationality, with copies of recent testimonials, to be sent to the Medical Superintendent.

Monmouthshire Asylum, Abergavenny.—Wanted, a **JUNIOR ASSISTANT MEDICAL OFFICER**, Male, single, registered. Previous Asylum experience not necessary. Salary £300 per annum, subject to the provisions of the Asylums Officers' Superannuation Act, 1909, with board, furnished apartments, washing, and attendance.

Applications, stating age, qualification, &c., with not more than three recent testimonials, to be sent to the Medical Superintendent.

Westmorland Sanatorium and Home, Meathop, Grange-over-Sands (144 beds).—Applications are invited for the post of **RESIDENT ASSISTANT MEDICAL OFFICER** to the Westmorland Sanatorium and **ASSISTANT TUBERCULOSIS OFFICER** for Westmorland. Salary £350 per annum, rising by increments of £25 annually to £400, together with apartments, board, and washing. Four weeks holiday in the year. Applications, stating age, experience, and date when at liberty, together with copies of recent testimonials, should be addressed to the Medical Superintendent.

Royal Sussex County Hospital, Brighton.—**JUNIOR HOUSE SURGEON (Male)** required. He must hold a Medical and Surgical qualification of the United Kingdom, and be duly registered under the Medical Act. He must be unmarried, and when elected under thirty years of age. Salary £150 per annum, with board, residence, and laundry. Applications, with proof of the above qualifications, together with copies of recent testimonials, must reach the Secretary not later than the 22nd September, 1920. L. W. LANCASTER-GATE, Secretary.

West Kent General Hospital, Maidstone.—There will be vacancies on 1st October next for **Two HOUSE SURGEONS**. Salaries will be at the rate of £220 per annum, with board, apartments, and laundry. Candidates must possess registered Medical and Surgical qualifications.

Applications, accompanied by copy testimonials, should be sent to the undersigned to reach him before noon on Wednesday, 22nd instant. 1st September, 1920. H. ST. JOHN WOOD, Secretary.

The Royal National Hospital for CONSUMPTION and DISEASES of the CHEST, Ventnor, Isle of Wight.—A **MALE ASSISTANT RESIDENT MEDICAL OFFICER** is required for twelve months, to take up duties at an early date. Salary £300 per annum, with residence and board in the Hospital. Candidates must be recently doubly qualified, registered, and unmarried, and be desirous of undertaking the earnest study of tuberculosis.

Applications in candidate's own handwriting, stating age and qualifications (with one copy of three recent testimonials), may be sent to the Secretary, R.N.H.C., 18, Buckingham-street, Strand, London, W.C.2.

The Royal National Hospital for CONSUMPTION, Ventnor, Isle of Wight.—The services of a **Male Locum Tenens**, to act as **ASSISTANT RESIDENT MEDICAL OFFICER** are required at once for a period of two months. Salary at the rate of 7 guineas per week, with board and lodging in the Hospital, and laundry allowance. Please state essential particulars to the Secretary, R.N.H.C., 18, Buckingham-street, Strand, London, W.C.2.

The Royal Infirmary, Sheffield

(363 beds).

The Weekly Board of Management invite applications for the following posts:—

One HOUSE PHYSICIAN.

One Ear, Nose, and Throat HOUSE SURGEON.

The salary attached to each appointment is £150 per annum, with board and residence.

Applications, together with copies of recent testimonials, should be addressed to Board Room, September, 1920. JKO. W. BARNES, Secretary.

Manchester Royal Infirmary,

CENTRAL BRANCH, Robt-street, Manchester.
52 beds. Pensioners. New Casualties about 30 daily.

MEDICAL OFFICER—RESIDENT.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, which is tenable for six months, to commence duty forthwith. Remuneration is at the rate of £250 per annum, with board and residence.

Applications, accompanied by copies of testimonials, to be sent to the undersigned at once. FRANK G. HAZELL, General Superintendent & Secretary.

Manchester Royal Infirmary.

BARNES CONVALESCENT HOSPITAL, Cheadle (136 beds).

RESIDENT MEDICAL OFFICER.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, which is tenable for twelve months, to be subject to the provision of the Law as to notice. Remuneration is at the rate of £300 per annum, with board and residence.

Applications, accompanied by copies of testimonials, to be sent to the undersigned. FRANK G. HAZELL, General Superintendent & Secretary.

South Devon and East Cornwall

HOSPITAL, Plymouth (176 beds).—The Committee invite applications for the appointment of a qualified HOUSE SURGEON, to commence duties on the 18th September, 1920. Special consideration will be given to candidates who have held a similar appointment in a large hospital. Salary £220, with board, residence, and washing. Candidates should send copies of not more than three testimonials to the undersigned. Plymouth, August 30th, 1920. P. J. LANGDON, Secretary.

The University of Sheffield.

DEPARTMENT OF PATHOLOGY AND BACTERIOLOGY.

The Council are about to make the following appointments:—
(1) A whole-time DIRECTOR (under the general control of the Professor of Pathology and Bacteriology) of the Public Health Bacteriology Laboratory. Salary £320 per annum.
(2) A whole-time ASSISTANT DIRECTOR of the Public Health Bacteriology Laboratory. Salary £500 per annum.
(3) A whole-time CURATOR of the Pathological Museum (under the general control of the Professor of Pathology and Bacteriology). Salary £200 per annum.
Applications, with copies of three recent testimonials, should be sent on or before September 24th, 1920, to the undersigned, from whom further particulars may be obtained. W. M. GIBBONS, Registrar.

The General Hospital, Birmingham.

Applications are invited for the post of SURGICAL REGISTRAR. This Officer will be required to attend daily in the Out-patient Department from 9 to 1 o'clock, to see all new patients, and refer them to the proper department. He will treat all Surgical Casualties with the assistance of the Casualty House Surgeons, and perform such other duties as the Board from time to time direct. He will receive a salary of £200 per annum.

Candidates must be Fellows of one of the Royal Colleges of Surgeons of the United Kingdom, or must obtain such qualification within twelve months of appointment.

The appointment will be renewable annually. Candidates should obtain a detailed list of their duties from the undersigned, to whom applications, together with diplomas and originals of testimonials should be sent by September 27th.

By order of the Board of Management. A. H. LEASEY, House Governor.

August 31st, 1920.

County Borough of Bootle.—Tuber-

CULOSIS OFFICER AND DEPUTY MEDICAL OFFICER OF HEALTH.—Applications are invited for the appointment of Tuberculosis Officer and Deputy Medical Officer of Health (Male), at a salary of £750 per annum, rising by annual increments of £50 to a maximum of £800 per annum, of which £150 per annum will be deducted in respect of board, &c., and residence provided in the Corporation Hospital, Bootle. Particulars of the duties (which include charge of the Infectious Diseases Wards in the above Hospital) and forms of application may be obtained from me.

Applications, accompanied by copies only of not more than three testimonials, must be sent to the undersigned, endorsed "Tuberculosis Officer," not later than the 16th September, 1920.

Choosing any member of the Council, either directly or indirectly will disqualify candidates. J. SWICKEN TWILLEY, Town Clerk. Town Hall, Bootle, 1st September, 1920.

Preston and County of Lancaster

ROYAL INFIRMARY (150 beds, with Special Ophthalmic, &c. Departments).—There will be vacancies at this Hospital on the 1st October for a HOUSE SURGEON and a HOUSE PHYSICIAN (R.S. and M.O. in addition). Candidates must be doubly qualified and registered. Salary, with board, residence, and laundry in each case, with copy testimonials, to be forwarded to 31st August, 1920.

JOHN GIBSON, Secretary.

Beckett Hospital and Dispensary,

Barnley (120 beds).—SENIOR HOUSE SURGEON (Male) required 1st September, Salary £250 per annum, with board, residence, and laundry.

Candidates must be legally qualified and registered. Applications, stating age, qualifications, experience, and nationality, together with copies of three recent testimonials, to be addressed to the Secretary, Beckett Hospital, Barnley.

County Asylum, Chester.—Third

ASSISTANT MEDICAL OFFICER wanted. Salary £350 per annum, with furnished apartments, board (no liquor), washing, and attendance. The appointment a subject to the provisions of the Asylum Officers' Superannuation Act, 1909.

Applications, stating age and qualifications, together with copies of three recent testimonials, to reach me on or before September 14th, 1920. R. HAMILTON GILLIS, M.D., Medical Superintendent.

Royal Berkshire Hospital (220 beds).

Wanted, a HOUSE PHYSICIAN and SECOND HOUSE SURGEON. Salaries £200 a year, with board, residence, and laundry.

Candidates must be fully qualified and registered.

The appointments are for six months. Applications, accompanied by copies of recent testimonials, should be addressed to the undersigned, of whom any further information may be obtained. Reading, 28th August, 1920. HERMAN BURNET, Secretary.

Ingham Infirmary and South Shields

AND WESTON DISPENSARY.—Wanted, a JUNIOR HOUSE SURGEON. Salary £175 per annum, with residence, board, and washing. No out-visiting. Candidates must hold registered qualifications in Medicine and Surgery. The appointment will be terminable by one month's notice. Applications, stating age, and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned, from whom further particulars may be obtained. JOHN POTTER, Secretary.

Ancoats Hospital, Manchester.—

RESIDENT SURGICAL OFFICERSHIP. Salary £250 per annum. Six months' appointment. This post falls vacant on October 31st next, and applications are invited.

Candidates must be fully qualified and registered. Previous experience in a similar post preferred.

The present R.S.O. is a candidate for this vacancy. Applications, stating qualifications and experience, to be forwarded to the undersigned on or before Monday, 27th September next.

By order of the Board. HERBERT J. DAFORNE, Secretary.

County Borough of Southampton.—

ASSISTANT MEDICAL OFFICER OF HEALTH.—Applications are invited for the position of Assistant School Medical Officer, at a salary of £250 per annum, to carry out duties in connection with the Medical Inspection and Treatment of School Children.

The appointment will be subject to the approval of the Board of Education.

The gentleman appointed must devote the whole of his time to the duties of the office, and the performance of such other duties as may be required under the direction of the Medical Officer of Health.

Forms of application may be obtained from the Medical Officer of Health, Municipal Office, Southampton.

Application on the prescribed form, endorsed "Assistant Medical Officer of Health," and stating age, qualifications, experience, &c., together with copies of not more than three recent testimonials, must be delivered at the Town Clerk's Office, Municipal Office, Southampton, before noon on the 25th instant.

3rd September, 1920. R. R. LINTHORN, Town Clerk.

County Council of Middlesex.—Resi-

DENT MEDICAL SUPERINTENDENT, HAINFIELD SANATORIUM.—The County Council of Middlesex invite applications for the post of Resident Medical Superintendent at the above Institution, at a salary of £1,200 per annum, with board, residence, and laundry, now in course of erection, at a corresponding salary of £750 per annum, together with and current war bonus (at present £124 12s. per annum), together with the usual and unforfeited house.

Candidates must be registered Medical Practitioners between thirty and forty-five years of age. They must have held resident hospital and forty-day special practical experience in the diagnosis and treatment of Tuberculosis, and in the administrative work of an institution for Tuberculosis. Experience in the training of patients in suitable occupations will be considered an additional qualification. Forms of application giving full particulars may be obtained from the undersigned, by whom applications, accompanied by copies of not more than three recent testimonials, must be received not later than 22nd September, 1920.

Choosing is prohibited. S. W. HART, Clerk of the County Council. Middlesex Gaol, Hainfield, Westminster, S.W.1.

Hull Royal Infirmary, Hull.—
Wanted at once, ASSISTANT HOUSE SURGEON. Salary £150 per annum.
Board and residence in each case. Applications, together with copies of recent testimonials, should be addressed to B. Brooks, Secretary.

Kent County Mental Hospital, Maidstone.—JUNIOR ASSISTANT MEDICAL OFFICER (Male) required. Salary £200 per annum, with furnished quarters, board, and washing. Must be single.
Application should be made at once to the Medical Superintendent.

Huddersfield Royal Infirmary.—
Vacancy for ASSISTANT HOUSE SURGEON. Salary £150 with apartments, board, and laundry.
Applications, accompanied by testimonials (copies), from fully qualified and registered gentlemen, to be sent to the Secretary at the Infirmary.

Bedford County Hospital.—Wanted, by Sept. 14th, an ASSISTANT HOUSE SURGEON, unmarried, Male. Candidates must be duly qualified to act in Medicine and Surgery. Salary £150 per annum, with board, lodging, and laundry. Applications, stating age, qualifications, medical school, and previous appointments, together with three recent testimonials, must be sent to August 25th, 1920. BEAUCHAMP WADMORE, Secretary.

Bradford Royal Infirmary (215 beds, 6 Resident Officers).—HOUSE SURGEON wanted for 1st of October.
Candidates must be single and legally qualified. Salary £200 per annum, with board and rooms.
Applications, stating age, qualifications, and previous experience (if any), with copies of testimonials, to be received by 15th September. J. J. BARRON, Secretary-Superintendent.

Scarborough Hospital and Dispensary.
Wanted, early in October, TWO HOUSE SURGEONS (Male or Female). Duties include Home Visiting.
Salary £150 per annum, with board, residence, &c.
Applications, stating age, with copies of testimonials and essential particulars, to be sent to the undersigned. J. DOUGLAS MUNBY, Hon. Secretary.

The Sheffield Royal Hospital.—
Applications are invited for the post of ASSISTANT CASUALTY OFFICER in the above Hospital. Salary £150, with board, residence, and laundry in the Hospital. Candidates must be registered Medical Practitioners and unmarried. Applications, with copies of testimonials, should be sent as early as possible to The Board-room, 28th August, 1920. JOE W. ROBINSON, Secretary.

County Asylum, Lancaster.—Assistant MEDICAL OFFICER (Man or Woman) wanted to do chiefly laboratory work and post-mortem examinations. An excellent laboratory is provided with all requisites. Candidates must be unmarried and not more than thirty-five years of age. Salary commences at £200 per annum, plus £150 war bonus, together with furnished apartments, board, attendance, and washing, valued at £150 (subject to 3% deduction for pension under Superannuation Act). Application, with testimonials and full particulars, to be sent to the Medical Superintendent as soon as possible.

County Hospital, Lincoln.—Wanted, a JUNIOR HOUSE SURGEON. Salary at the rate of £150 per annum, rising to £200 per annum at the completion of six months' approved service. Board, residence, and washing will be provided.
Candidates for the appointment must be duly registered under the Medical Act.

Applications, stating age and other particulars, with copies of not more than three recent testimonials, should be addressed to the undersigned, from whom any further particulars may be obtained.
ARTHUR MOORE, Secretary-Superintendent.
Lincoln, Sept. 6th, 1920.

King Edward VII. Welsh National Memorial Association.—Applications are invited for the post of JUNIOR ASSISTANT RESIDENT MEDICAL OFFICER at the South Wales Sanatorium, Talgarth, Breconshire. The salary offered is £400 per annum, plus maintenance.
Applications, stating full qualifications and experience, with copies of three recent testimonials, should reach Dr. H. E. Watson, the Sanatorium, Talgarth, Breconshire, not later than the 18th instant.
P. J. ALBAN, Secretary.
Memorial Offices, Westgate-street, Cardiff.

Princess Alice Hospital, Eastbourne (75 beds).—Applications are invited for the post of MALE RESIDENT MEDICAL OFFICER. Candidates must be unmarried, fully qualified. Duties to commence on 1st November next. Appointment is for six months, and may be extended. Salary at rate of £175 per annum; if appointment extended, salary will be at rate of £200 per annum.
Applications, stating age, qualifications, and accompanied by not more than four recent testimonials, should be sent to the Hon. Secretary (from whom further particulars may be obtained) not later than the 30th September.

Devon and Cornwall Sanatorium, Didworthy, South Brent.—Wanted, LOCUM TENENS for four weeks, September 18th to October 18th. Hospitality, £6 6s. per week, and travelling expenses not to exceed £3 15s. Apply, Medical Supt.

Derbyshire Royal Infirmary, Derby.—
There is a vacancy in this Infirmary (General Hospital of 320 beds) for the post of ASSISTANT HOUSE SURGEON and CASUALTY OFFICER. Candidates must hold qualifications in Medicine and Surgery and be registered under the Medical Acts. The appointment is tenable for six months, with a possibility of extension for a further period of six months.
Salary £200 per annum, with apartments, board, &c.
Applications, with copies of not more than five testimonials, to be sent to the undersigned.

WALTER BANKS, Superintendent and Secretary.
Royal Infirmary, Derby, 6th September, 1920.

Royal Victoria Infirmary, Newcastle-upon-Tyne.—The House Committee invite applications for the post of HONORARY ASSISTANT SURGEON.
Every candidate must be a registered Graduate in Surgery of any University recognised by the General Council of Medical Education and Registration of the United Kingdom, or a registered Fellow, Member, or Licentiate of one of the Royal Colleges of Surgeons of the United Kingdom, provided that he is practising as a Surgeon and not as a General Practitioner.
Applications must be sent to the House Governor and Secretary, Royal Victoria Infirmary, Newcastle-upon-Tyne, not later than Saturday, 25th September, 1920. The appointment will be made on Thursday, 7th October, 1920.
Personal canvassing will be considered a disqualification for office.
3rd September, 1920. R. ORDE, House Governor and Secretary.

Salford Royal Hospital (272 beds).—
Applications are invited for the following vacancies which will occur in the Resident Medical Staff (Male) on the 30th instant:—
RESIDENT SURGICAL OFFICER. Salary at the rate of £250 per annum.
HOUSE PHYSICIAN. Salary at the rate of £200 per annum.
HOUSE SURGEON. Salary at the rate of £150 per annum.
JUNIOR HOUSE SURGEON. Salary at the rate of £150 per annum.
CASUALTY HOUSE SURGEON. Salary at the rate of £150 per annum.
The appointments are for a period of six months, with board and residence.
Candidates must be registered under the Medical Act.
Applications, stating age and qualifications, together with copies of testimonials and certificate of registration, to be addressed to the undersigned without delay.
By order of the Board.
GEORGE RUDDEL, General Superintendent and Secretary.
6th September, 1920.

Metropolitan Asylums Board.—
PRINCESS MARY'S HOSPITAL for CHILDREN, Cliftonville, Margate.—The Metropolitan Asylums Board invite applications for the appointment of JUNIOR ASSISTANT MEDICAL OFFICER in their Tuberculosis Service. The present vacancy is at Princess Mary's Hospital for Children, Cliftonville, Margate, which accommodates 271 children suffering from Tuberculosis. Experience in Tuberculosis, especially non-pulmonary forms, and their treatment by modern methods, in Orthopaedic work, and also in Radiography will be a recommendation. Salary £215 6s. per annum, including war bonus. Preference will be given to candidates under thirty years of age. The candidate appointed will be required to reside in the Hospital and to pay for board, lodging, and washing at the rate fixed from time to time by the Board's Finance Committee. At present the rate is £130 per annum.
Applications to be made not later than 10 a.m. on Saturday, 25th September, on forms obtainable by sending stamped, addressed foolscap envelope to the Clerk, Metropolitan Asylums Board, Embankment, London, E.C.4.

Surrey County Council.
URBAN DISTRICT COUNCIL OF BARNES.
MEDICAL OFFICER OF HEALTH, SUPERINTENDENT OF ISOLATION HOSPITAL, DISTRICT TUBERCULOSIS OFFICER, MEDICAL OFFICER OF WELFARE CENTRE, & SCHOOL DOCTOR

Applications are invited for the above-named joint appointments.
The Barnes Urban District Council will appoint the Medical Officer of Health in accordance with the General Order of the Ministry of Health at a salary of £431 per annum, who will also be required to act as Medical Superintendent of the Isolation Hospital at a salary of £100 per annum.
The Surrey County Council will appoint the same gentleman to act as Tuberculosis Officer, Medical Officer of the Maternity and Child Welfare Centre, and School Doctor in the Urban District at a salary of £229, making up a total salary of £200 per annum.
Candidates must be registered Medical Practitioners, holding qualifications in Public Health, not over forty-five years of age, and prepared to reside within the Urban District.
Applications, stating qualifications and experience, together with copies of three recent testimonials as to character and ability, to be sent to me before 12 noon on October 2nd, 1920. Canvassing is forbidden.
WM. THOS. GOODALE,
Clerk to the Urban District Council.
The Council House, Mortlake, S.W. 14, 6th September, 1920.

Oldham Royal Infirmary.—Wanted,
HOUSE SURGEON. Salary £250 per annum, with board, residence, and laundry. Applications, with testimonials, to be addressed to
CHARLES D. DRAKE, Superintendent and Secretary.

Hull City Asylum, Willerby, near Hull.—Wanted, JUNIOR ASSISTANT MEDICAL OFFICER (Male or Female). Salary £330 per annum, with board, lodging, and washing. Apply, stating age and qualifications, with not more than three recent testimonials, to the Medical Superintendent.

Essex County Hospital, Colchester
(100 beds).—Wanted immediately, a HOUSE SURGEON (Male). Salary £200 per annum, with board, washing, and residence in the Hospital. Medical and Surgical qualifications required. Applications, with three recent testimonials, to be sent at once to
ALFRED G. BUCK, Secretary.

Govan District Asylum.—Junior
ASSISTANT PHYSICIAN wanted. Salary commencing £325, with board, apartments, and laundry. The Asylum is in the outskirts of Glasgow, and offers excellent facilities for research work. Apply to Medical Supt., "Hawkhead Asylum", Cardonald, Glasgow.

Ayr County Hospital.—The Directors
invite applications for the post of RESIDENT HOUSE SURGEON. Salary £120 per annum, with board and residence. Appointment from 1st October, 1920, for one year or six months, as may be arranged.

Applications, with testimonials, to be lodged not later than Saturday, 18th September, 1920.
Wellington Chambers, Ayr. J. H. GORDIE, Secretary.

Medical Assistant.—Wanted as Resident Assistant, Medical Superintendent at AYRSHIRE SANATORIUM, Glenfuir, New Cumnock. Salary £250, with board and rooms. For further particulars, apply to Mr. ROBERT WELSH, Clerk to the Committee, 21, Wellington square, Ayr, with whom applications and testimonials are to be lodged up to 14th September, 1920.

Aberdeen Royal Infirmary.—Wanted
for the Treatment Centre at the Aberdeen Royal Infirmary, under "The Public Health (Venereal Diseases) Regulations (Scotland), 1915," a **WOUNDED JEWELL MEDICAL OFFICER** (Male). Candidates must have had experience in the Specialty, and be prepared, if required, to render assistance with the work generally throughout the Area falling within the Centre, and in the instruction of Medical Students and Practitioners in diagnosis and treatment.

Salary £500 per annum.
Any further particulars desired may be had from the undersigned, with whom applications (stating experience) and testimonials—fifteen copies of each—have to be lodged on or before 30th September current.
A. SCOTT FINNIE, Clerk and Treasurer.

343, Union-street, Aberdeen.

Scottish Board of Health.—Appointment of DISTRICT MEDICAL OFFICERS.—The Scottish Board of Health invite applications from registered Medical Practitioners (Men) of not less than ten years' standing for appointment to act as Medical Officers of the Board for the discharge of combined clinical and administrative duties in connexion with the National Health Insurance Medical Service and otherwise.

It is proposed to appoint five whole-time Officers, of whom two will be Senior and three Junior Officers.

RESIDENCE.—The country will be arranged in districts, and each Officer will be required to reside in or in the immediate neighbourhood of the district assigned to him.

DUTIES.—The Officers will be required to perform such duties as may be assigned to them by the Board from time to time. These duties will include:—

- (a) Acting as Referees on questions of incapacity of insured persons for work and giving second opinions on questions of diagnosis and treatment;
- (b) Organising the arrangements for work of part-time Medical Referees for the district; and
- (c) Assisting in the Administration of the Insurance Medical Service.

REMUNERATION.—The rate of remuneration will be £1000 per annum, rising by annual increments of £50 to a maximum of £1400 for Senior and £1200 for Junior Officers, and no war bonus will be payable in addition thereto. Officers appointed to this scale will be established Civil Servants with the usual pension rights.

Applicants who are under the age of thirty years and upwards, who may be appointed, will not be established but will receive a non-pensionable remuneration higher than the minimum of the scale, and in such cases the appointments will be for a limited term of years.

In making the appointments the Board will consider and give weight to experience of general practice.
Further particulars of these appointments and forms of application may be obtained from The Scottish Board of Health, 23, Princes-street, Edinburgh.

Applications, for forms and applications should have the words "Medical Officer" written in the bottom left-hand corner of the envelope. No applications can be considered if received after the 15th September, 1920.

In addition to the whole-time appointments referred to above, a number of part-time appointments where payment will be by session or by case, will be the subject of a separate announcement, and no applications for these part-time appointments should at present be made.

University of Aberdeen.

LECTURESHIP IN BACTERIOLOGY.

Applications are invited for the post of Lecturer in Bacteriology within the Department of Pathology.

Salary according to qualifications.

Federated Superannuation Scheme for Universities compulsory. Applications, together with full statement of qualifications, age, and copies of not more than three testimonials, to be lodged with the Secretary of the University, Marischal College, Aberdeen.

H. J. BUTCHART, Secretary.

Vacancy for an Assistant Medical
OFFICER OF HEALTH, British Guiana. Salary £800, rising by £25 annually to £700, with a temporary increase of £100; also travelling allowance of £125 per annum for the upkeep of a motor-car. Pensionable. Free passages provided to the Colony for officer and family not exceeding five persons.

Candidates must have a knowledge of Public Health work and Sanitary administration, preferably with Army experience, and if possible should possess a D.P.H. Further information and forms of application may be obtained from the Assistant Private Secretary (Appointments), Colonial Office, Downing-street, S.W. 1.

COLONIAL SERVICE.

Medical Officers are required for the

WEST AFRICAN MEDICAL STAFF, and also for the GOVERNMENT SERVICE in MALAYA, the EAST AFRICAN PROTECTORATES, the WEST INDIES (including BRITISH GUIANA), FIJI, and the WESTERN PACIFIC, &c., &c.

The conditions of service differ widely in the various Colonies and Protectorates, but in general the appointments are permanent and pensionable (after a period of probation), and free passages are provided to the place of appointment.

Particulars of vacancies and forms of application can be obtained from the

Assistant Private Secretary (Appointments),

Colonial Office,

Downing Street,

London, S.W. 1.

Government of the Union of South

AFRICA.—Applications are invited for five vacancies for JUNIOR ASSISTANT PHYSICIANS in the UNION MENTAL HOSPITAL SERVICE.

1. Applicants must be single and not more than about thirty years of age.

2. Engagement in the first instance for three years, with the prospect of extension of employment.

3. Salary £500 per annum, rising by annual increments of £20 per annum to a maximum of £520 per annum, plus free board, lodging, washing, &c.

4. Free first-class passages to Cape Town and free first-class railway tickets to destinations in South Africa.

5. Qualifications. Preference will be given to candidates with previous experience in Mental work.

6. The selected candidates will be required to produce entirely satisfactory medical certificates on forms to be supplied for the purpose by the High Commissioner for the Union of South Africa.

Applications, which may be submitted in any form which candidates consider desirable, together with copies of testimonials as to character, qualifications, and experience, all in duplicate, should reach the Secretary, Office of the High Commissioner for the Union of South Africa, 35, Victoria-street, S.W., not later than 15th September, 1920.

Wanted, Medical Officer, fully qualified, for C.M.S. Kavirondo, East Africa. Good maintenance allowance, house accommodation, station allowances, passage out and home, outfit allowance, &c. Must be in full sympathy with the work of the Church Missionary Society. Apply, Secretary, Medical Committee, Church Missionary Society, Salisbury-square, E.C.4.

Medical Officer, fully qualified, wanted for position in C.M.S. MENGO MEDICAL SCHOOL, Uganda. House, good maintenance allowance, outfit allowance, passage out and home, various allowances on the station. Must be in full sympathy with the work of the Church Missionary Society. Excellent opportunity for Surgical and Medical experience in Hospital of 230 beds. Position now vacant. Apply, Secretary, Medical Committee, Church Missionary Society, Salisbury-square, E.C.4.

Medical Officers for Southern India. Applications are invited for the appointment of a European Medical Officer to a group of Tea and Rubber Plantations in (a) Wynad, (b) Travancore. The duties will include attendance on the European and Native Staffs and Labour Force and the Sanitation of the Estates. Previous experience as H.S. or I.L. considered favourably, also training in Tropical Diseases or Antimalarial Work and Public Health. Married candidates should be under thirty-five years of age. If without Tropical experience not be more than thirty years of age. Salary according to qualifications. Limited private practice will be allowed. Bungalow accommodation and motor-car will be provided. Agreement for four years with renewal if services satisfactory. Six months' leave on full pay after four years. First-class passage out and home. Full particulars and forms of application can be obtained from Harrisons and Crofield, Ltd., Room G4, 1-4, Great Tower-street, E.C.3.

University of Sydney.
NEW SOUTH WALES, AUSTRALIA.

CHAIR OF DENTISTRY.
Applications are invited for the above position. Salary (fixed) £1100 per annum, and £150 allowed for travelling expenses to Sydney. The successful candidate will be appointed for a period of seven years, but may be re-appointed. Duties commence 1st March, 1921. Particulars may be obtained from the undersigned, to whom applications (in quadruplicate), stating age, qualifications, &c., accompanied by copies of not more than three testimonials, should be sent not later than Saturday, 9th October, 1920.

AGENT-GENERAL FOR NEW SOUTH WALES
Australia House, Strand, London, W.C.2, 7th September, 1920.

University of Sydney.
NEW SOUTH WALES, AUSTRALIA.

CHAIR OF PHYSIOLOGY.
Applications are invited from candidates qualified for the above position. Salary (fixed) £1150 per annum, and £150 allowed for travelling expenses to Sydney. Pension of £400 per annum, under certain conditions, after twenty years' service. Duties commence 1st March, 1921. Particulars may be obtained from the undersigned, to whom applications (in quadruplicate), stating age and qualifications, and names of three referees, should be sent not later than Saturday, 9th October, 1920.

Ship's Surgeon. — Messrs. Elder
Dempester and Co., Limited, have a few vacancies for Surgeons in their West African Service. Pay £20 per month. Fees allowed for attendance on passengers. Length of voyage varies from six to ten weeks, according to particular route. —Apply, Medical Superintendent, Messrs. Elder Dempester and Co., Limited, Colonial House, Liverpool.

Chief Medical Officer required for
Tuberculosis Colony. Commencing salary £350 per annum, with board and residence. Further particulars on application to General Manager, Scholastic, Clerkenwell Medical Association, Ltd., 22, Craven-street, London, W.C.2.

M.B., B.S., reading for D.P.H.,
Extraordinary Appointments, would assist Doctor Mornings, and their West African Service. London district. Free end September. Address, No. 320, The LANCET Office, 423, Strand, W.C.2.

Medical Man, graduated 1914, at
the time Medical Officer of Government Serbia, desires appointment as MEDICAL OFFICER in English Mining or Manufacturing Company in the Continent or in the Colonies. Languages: English, German, French, Serbian, Russian. Offers.—G. Howe, M.D., 4, Roke, South.

t-Col. recently invalidated from
India, with four and a half years' unexpired service in India, and commencing with an officer of full rank serving in England, for the next two years to run and who is desirous of proceeding to—Apply, P. care of Journal of the R.A.M.C., 5, Serle-street, W.C.2.

Locum Tenens Provided
at short notice.

Apply to Mr. PROVOVAL TURNER, the oldest and only Agent who for forty years, without agency fee to Principals, has supplied Practitioners with reliable substitutes, 4 & 5, ADAM STREET, ADELPHI, STRAND, W.C.2. Telegrams: Epsomian, London. Telephone: Gerrard 399. After 5 P.M.—Tel. Epsom 695.

Locum s.—Lee & Martin, Ltd.,
71, TEMPLE ROW, BIRMINGHAM. Telephone: 1116 CENTRAL. Telegrams: "LOCUM BIRMINGHAM." NOTE Change of Address.

Locum Tenens Provided.
APPLY TO
ARNOLD & SONS,
6, GILTSPUR STREET, LONDON, E.C.1.
Telegrams: "Instruments, London." Telephone: 5240 City (3 lines).

Dispenser (Hall Certificate), 4½ years'
experience, desires post with Doctor or Institution.—Address, No. 319, THE LANCET Office, 423, Strand, W.C.2.

The Women's Legion, 447, Oxford-
street, W., have several R.N.A.D.s applying for positions as Doctors' MAID-ATTENDANTS.—Apply, Staff Controller.

Country Practice wanted in Sussex.
Will buy or exchange similar one in Kent.—Address, No. 300, THE LANCET Office, 423, Strand, W.C.2.

Wanted by M.R.C.S., L.R.C.P.,
M.A. Can't. PARTNERSHIP (small panel, &c.), within twenty to thirty radius London, or N. Wales, Sea Coast, &c. H.S., &c.—Dr. H. Chadwick, The Lawn, Brooklands, Cheshire.

Wanted by M.R.C.S., aged 33, a
Country PRACTICE in the South of England suitable for two income £2000 to £3000.—Apply, Blundell & Co., Walter House, 418-422, Strand, W.C.2.

Wanted, a Country or Country Town
PRACTICE producing not less than £1000 per annum. Good house and garden essential. Can settle at once.—Send details, in confidence, to T. care of Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hospital).

Wanted, Private and Panel Practice
in or near London or large Provincial Town. Receipts over £1000 a year. Medium-sized house and garden preferred. Necessary capital available for immediate purchase.—Apply, Peacock & Hadley, 19, Craven-street, Strand, W.C.2. (No charge unless sale effected.)

Wanted, Cash and Panel Practice in
London or Suburbs. Can pay £600 down and the balance by instalments. Free to settle at once.—Send details, in confidence, to E.C.1 (opposite St. Bartholomew's Hospital).

Wanted by M.B., Middle- and
panel. Working-class PRACTICE in London, with proportion of £18-22, Strand, W.C.2.—Apply, Blundell & Co., Walter House.

Wanted, Practices and Partnerships.
Messrs. ARNOLD & SONS, Surgical Instrument Manufacturers (founded 100 years), are in urgent need of Practices or Partnerships for several of their Clients who are anxious to settle down at once.—Send full particulars, in confidence, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hospital).

Surrey.—A Partner required for a
large Practice situated in a favourite Riverside resort. Receipts over £2000. Panel list 2000. Ample scope for increase. Fees 3s. 6d. upwards. Midwifery 6s. upwards. Premium for One-third or Half Share two years' purchase.—Quote Folio 1252, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hospital).

Death Vacancy.—West of England.—

JUNIOR PARTNER wanted in old-established unopposed Practice in good sporting district on line of rail. One-third Share offered at present guaranteed not less than £500 a year. Unusual scope. —Apply, Mr. 6829, care of Mr. Percival Turner, 4, Adam-street, London, W.C.2.

South Coast.—A Partner (single)

required in an old-established Practice situated at a favourite seaside resort. Receipts 1919 over £2000. Panel list £200. Fees 2s. 6d. upwards, excellent scope for increase. Premium One-third Share £1600. —Quote Folio 1258, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hospital).

Partnership.—Over £2000 a year.—

Seaport Town. Old-established. South-West County. Panel 1800. Scope for Surgery. Good Hospital. Personally known. Half Share for Sale. Whole sale. —Apply, Mr. 6815, Mr. Percival Turner, 4, Adam-street, Strand, W.C.2.

Medical Partnership in North Devon.

—An excellent opportunity for a Doctor with experience in Surgery and Eye work, in an old-established Practice situated in all particulars about £4500. A quarter or larger Share for disposal. Full particulars from Robson & Perrin, 40/42, King William street, E.C.4.

Partnership.—The Third Share of a

Firm of Surgeons practising in S.W. district (receipts certified by well-known firm of Chartered Accountants to be over £3000 per annum, panel 1400) is for disposal. —Hospitals, stating age, qualifications, experience, &c., to No. 321, THE LANCET Office, 423, Strand, W.C.2. One who has been House Surgeon in large General Hospital preferred.

Partnership.—In favourite Coast

Resort and prosperous Business Town with good Hospital. Partner (young English or Scotch Graduate) required in a first-class General Practice with panel, no dispensing. £4000 per annum. One-quarter Share to begin. Two good practices open. —J. A. Heslde, The Medical Agency, Watergate House, Adelphi, W.C.2.

Partnership.—£3000 a year.—London

Suburb. Very old-established Practice held forty years by vendor. Appointments and panel £1400. Easily worked. Very little night work. Fees 10s. 6d. to 2s. 6d. Half Share for Sale. Personally known and recommended. —Apply, 6333, Mr. Percival Turner, 4, Adam-street, Strand, W.C.2.

For Disposal, Practices or Partner-

SHIPS. —Messrs. ARNOLD & SONS, Surgical Instrument Manufacturers (Estab. 160 years), have been instructed to privately dispose of a large number of really good Practices and Partnerships. Gentlemen are requested to state their requirements and amount of capital available. No charge to purchasers. —Address, Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hospital).

For Disposal.—A really good Practice

is not always to be had directly, but Mr. PERCIVAL TURNER (with thirty years' personal experience) can generally offer Applicants something suitable on being furnished with details of their requirements. Nearly all the best Practices are sold by him without being advertised. —Full information free of charge on application, personally or by letter, to 4, Adam-street, Adelphi, Strand, W.C.2.

Eastern Counties.—A good-class

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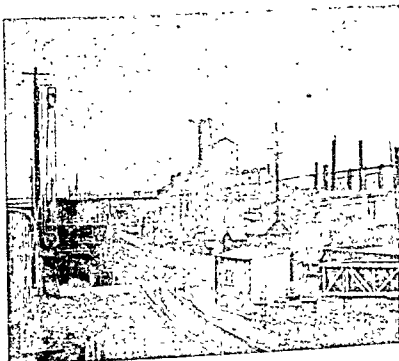
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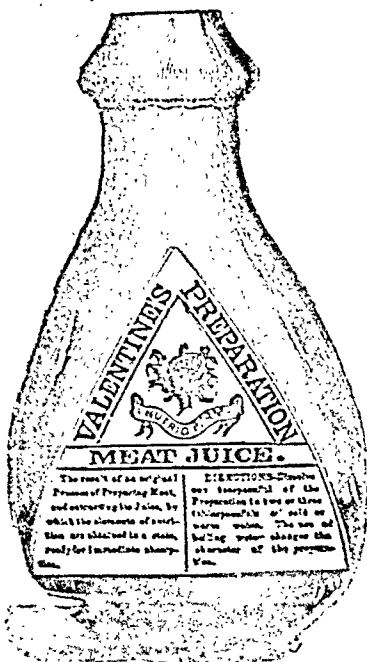
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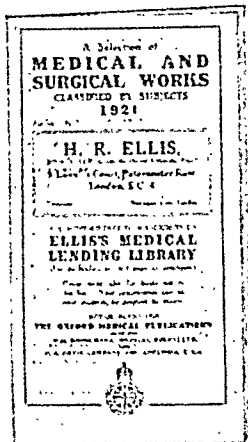
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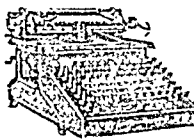
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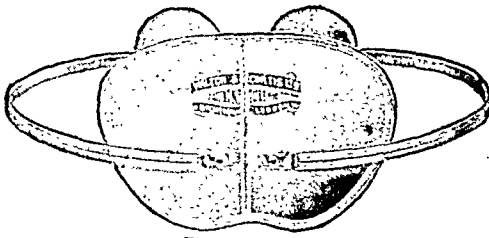
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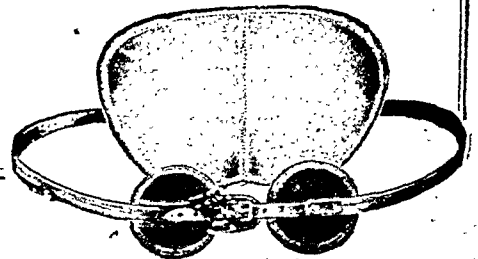
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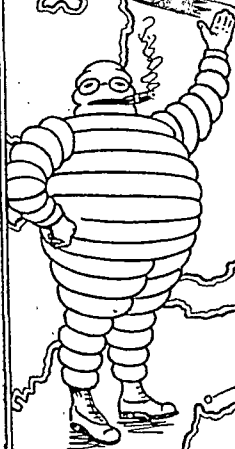
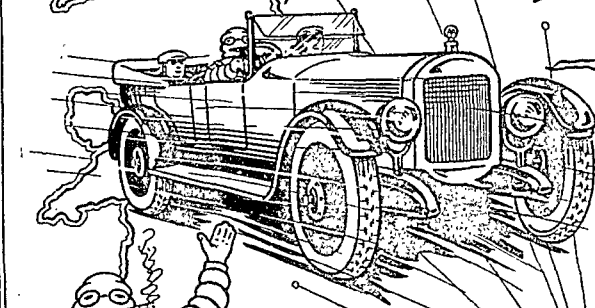
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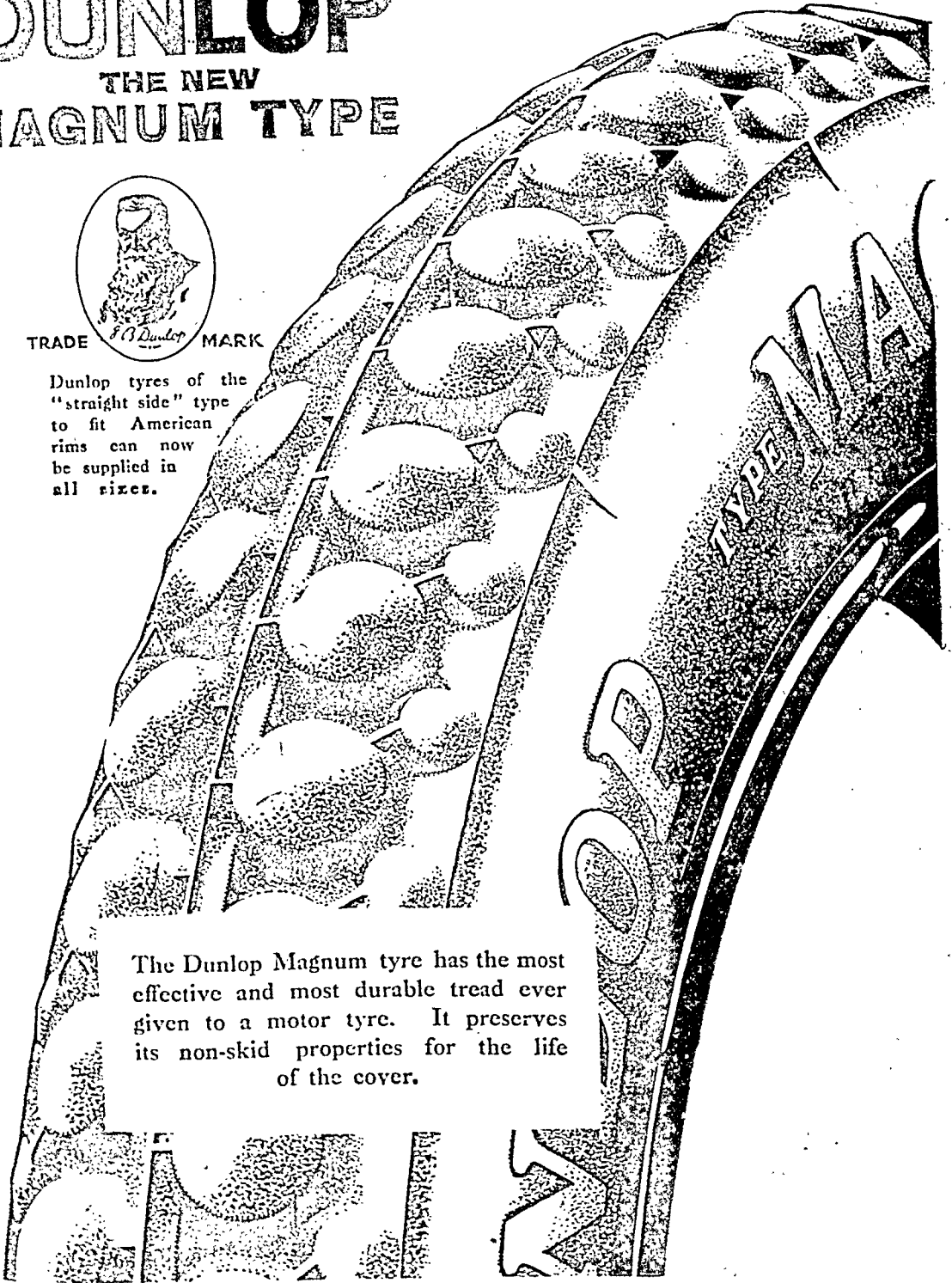
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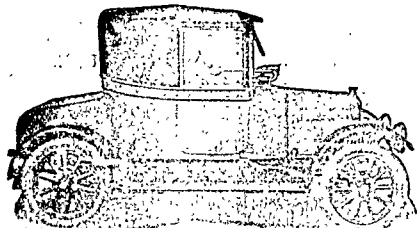
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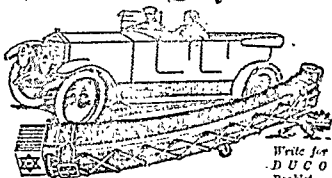
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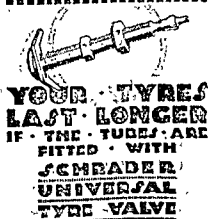
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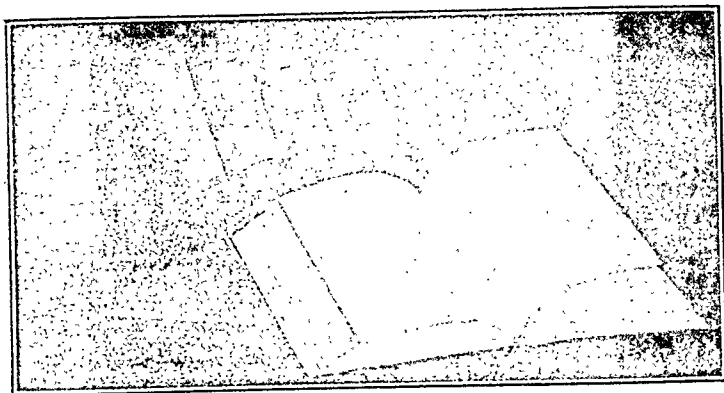
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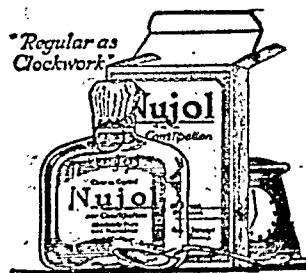
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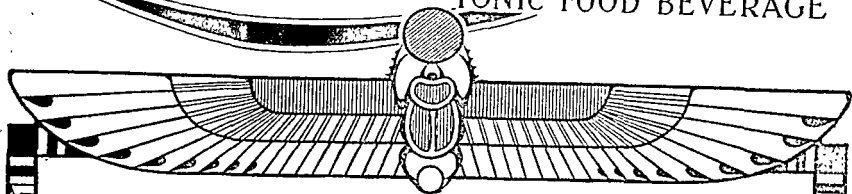
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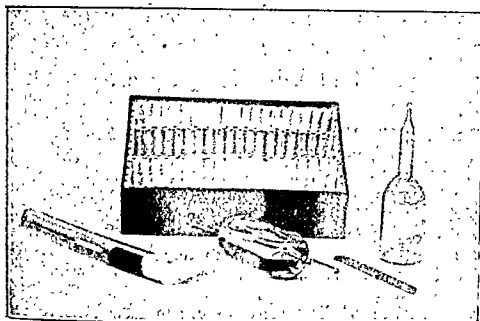


Fig. 1.

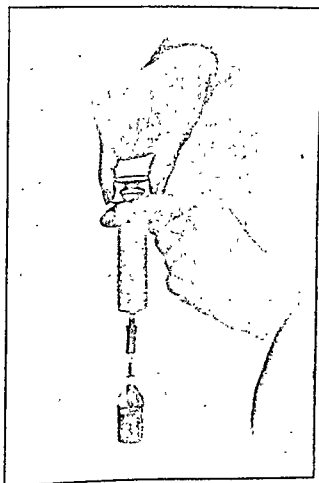
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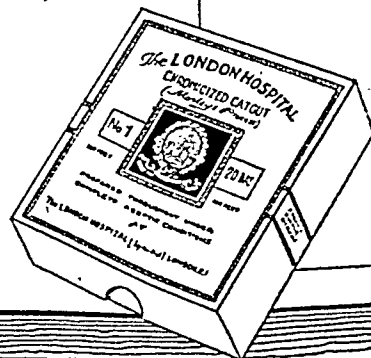
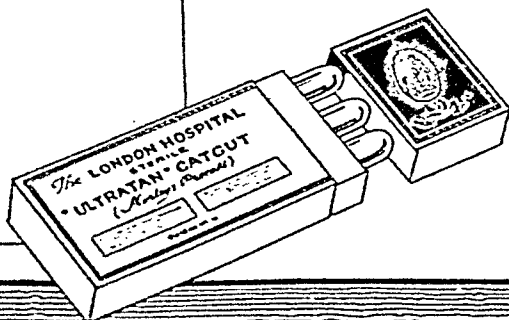
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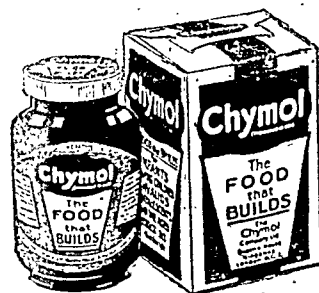
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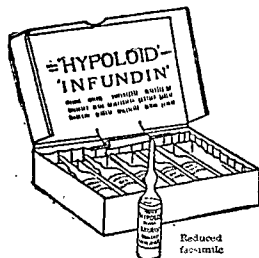
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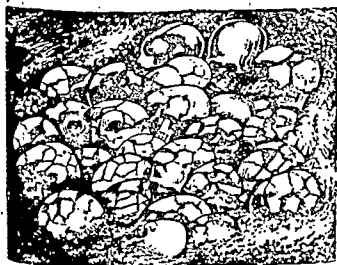


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SKULLS REPRESENTATIVE OF TWO NEW RACES WHICH PIONEERED THEIR WAY ALONG THE DANUBE INTO WESTERN EUROPE IN PRE-NEOLITHIC TIMES.—The close of the last Ice Age, with the resulting improvement in climate, was perhaps a cause, if not the cause, of a number of great migrations of peoples, of which we have evidence at this time. Whether the great Cro-Magnon was exterminated or not is uncertain; there may have been some slight mingling of races, and signs are not wanting of what looks like a survival of Cro-Magnons in the Dordogne district. Of two of the new races, the skulls here reproduced provide peculiarly interesting evidence. This interment was discovered during the present century in Earleton, Bavaria. The skulls are of two distinct kinds, some being extremely long, the others extremely short. The former, unlike the dolichocephalic Cro-Magnons, are harmonic in type, while the latter are of unusual interest as representing the first brachycephalic race to enter Europe. The first historical evidence of a mingling of races is provided by this discovery. The skulls represent many successive burials; around one first skull others had been buried, one after another, in concentric circles in two prepared pits. CULTURE PHASE: EPIPALEOLITHIC (Azilian-Tardenoisian)



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Lectures

ON

MENTAL DEFECT AND CRIMINAL CONDUCT.

Delivered to the Members of the Class of Psychological Medicine, Maudsley Hospital.

By SIR BRYAN DONKIN, M.D., F.R.C.P.,

LATE ONE OF H.M. COMMISSIONERS OF PRISONS.

LECTURE I.—ON "MENTAL DEFECT": ITS GENERAL AND SPECIAL IMPLICATIONS.

(Delivered on Oct. 25th.)

THE presence in a notable number of offenders against the criminal law of clear evidence of mental defect, which *practically* marks them off from the bulk of the law-abiding community and from the majority of criminals as well, is recognised by all those who have good opportunities of observing and conversing with convicted prisoners. I lay purposeful stress here on the word "*practically*," using it without making any assumption that this particular group of criminals is otherwise differentiated. I mean only that such criminals are the subjects of patent mental defect of some kind or other, which is recognisable, with but little expert knowledge, from the quality of their conduct, and quite apart from any consideration of the crimes for which they have been convicted or of the probable nature and origin of the mental defect inferred. Such criminals as these have been for a long time regarded by the English prison authorities, for the purpose of special treatment, as being practically a class apart from the average prisoner, and have been described in the convict prisons, the inmates of which are all sentenced to penal servitude (i.e., for three years or more) as "*weak-minded*" and more or less irresponsible for their misdoings. They were thus recognised in the several convict prisons for a considerable period of time before I became a Commissioner of Prisons 22 years ago. All of such weak-minded convicts have now for many years been congregated in one only of the convict prisons, where they have appropriate work, under special regulations, and are mainly regarded and treated as hospital cases under the immediate supervision of the medical officers. Several of them are ultimately certified under the lunacy law and sent to asylums, and others are dealt with under the recent Mental Deficiency Act.

A general recognition of this kind of criminal has existed in this and other countries for a long time, as is manifested in a still growing mass of literature dating from about half a century ago, and devoted more particularly to the study of criminals themselves than to that of crime and the problems of punishment, which had mainly absorbed the attention of prominent writers on penology during the eighteenth century and most of the nineteenth. It is only in comparatively recent times that the study of criminals has to some extent taken the place of that of penal jurisprudence, and that the conception of what is called a science of "*criminology*" has made its appearance.

MENTAL DEFECT AS A FACTOR IN CRIMINAL ACTION.

I cannot attempt to give in these lectures even a short compendious account of the large number of modern works, mostly of non-English origin, on this subject, but must confine my attention only to such topics as may be necessary for the elucidation of my purpose. This purpose is, chiefly, to state as clearly as I can my views on the extent of the rôle played by mental defect as a factor in criminal action, and, incidentally, to glance very briefly at the relation of that rôle to the penal treatment of offenders. And I may say at the outset that after considerable practical experience and reflection, and no little study of British, American, and European writings on the subject, I am forced to the opinion that no "*science*" or systematic study of criminals in the mass, sufficiently definite to be of great practical value, is likely to be arrived at. I have long been convinced, in common

with other observers of our species, that all human beings are potential criminals; and that a large number of men and women commit crime, in the sense of wilfully injuring society for their own individual purpose, whether or not they are detected in breaking, or even break, any existing law. The study of criminals is, indeed, an integral part of the study of man, and of human psychology especially; but the indefinite nature of the differences that have as yet been established between criminals and law-abiding men in the mass seems to me to point away from the prospect of establishing anything like a special and clear-cut body of knowledge which would merit the name of a "*science*" of criminology. I trust that my subsequent remarks will justify this initial expression of opinion.

I have used in my opening sentence the term "*mental defect*" in its widest sense, not in the more special sense as it occurs in the Mental Deficiency Act of 1913, and as I shall usually employ it later in these lectures. For the moment I mean this term to cover all such cases, whether described as "*unsoundness*" or disorder, or defect, of mind, as are recognised by the Lunacy and Mental Deficiency Acts, as well as such other cases as may need special care and control, but cannot be included under any category which is held to qualify them for technical certification. It is clear that all the cases recognisable under these Acts—i.e., persons of unsound mind, idiots, and the other groups specified in the Mental Deficiency Act—are cases of *defective or disordered mind*; although, equally of course, not all cases of defective or disordered mind are recognisable by either of these Acts.

I would, therefore, recast my opening sentence thus: There is a notable number of law-breakers of all kinds, not only of those sentenced to terms of penal servitude, but also of those convicted for lesser offences against the law, who are quite clearly the subjects of mental defect in some of its recognised forms and degrees. It is, moreover, largely but not by any means wholly with respect to this class of offenders that the important questions of their responsibility, or degree of liability to punishment, and of their appropriate treatment, are concerned.

With regard to the prevalence of certifiable insanity in prisoners, compared to that in the population at large, as computed from the annual returns of asylum inmates, and of prisoners detected as insane and certified as such after coming to prison, this is practically the same; but, as it is stated in the late Dr. Charles Goring's well-known work on "*The English Convict*," if the number of *deaths* of prisoners certified insane and subsequently removed to asylums are added to the prison returns, "*a high degree of association between crime and insanity is manifest*." This is a valuable corroboration of the impression received in prisons generally of the not inconsiderable numbers who come into prison with signs of easily recognisable insanity, and who are promptly certified and, being sent to asylums, are no longer returned as prisoners. It has, indeed, been long known that insanity of an unquestionable kind is a very frequent contributor, if not practically the chief factor, in the production of many crimes, homicidal or other, characterised mainly by injury to person or property, and also including some "*political*" crimes perpetrated on the strength of unquestionably genuine delusions.

When I arrive at the closer consideration of the relationship between mental defect and criminal action generally, which will be the subject of my next lecture, I shall have to limit my remarks almost entirely to mental defectives so-called, whether or not such "*lunatics*" technically be actually certifiable under the recent Mental Deficiency Act of 1913. For it is notably in connexion with this class of cases that the scientific and practical aspects of the subject in hand becomes of high importance and has been the subject of much discussion. It is here that we encounter the chief question proper to our theme—viz., whether the mass or the majority of law-breakers are signalled by such marks of mental defect as to justify their being regarded from a scientific point of view as almost

wholly the product of "natural" or "constitutional" defects, and but slightly, if at all, of the "force of circumstances" that have acted upon the individual law-breakers through their lives. But before I enter upon this main question I must mention a few initial difficulties which beset more or less the study and exposition of "mental defect" in its more special sense, without giving regard for the moment to its relation to crime. Some of these difficulties are of a practical, others of a theoretic, nature.

THE MEANING OF THE TERM "MENTAL DEFECT."

The first point for note is the content of the term "mental defect" in general, and as it is interpreted in the Act of 1913. In general the study of mental defect is a matter of psychology, and in common with that of mental soundness the term connotes a meaning which must vary according to views held by the student touching the nature of mind and its relation to the bodily organs, and especially to the brain. We are all aware that these views are numerous, and are held with considerable tenacity by their various adherents. They may be roughly divided into opposite groups, commonly known as the "scientific" and the "metaphysical," and by many other pairs of opposite terms: such as "materialistic-idealistic" or "mechanist-vitalist."

The unnecessary introduction of the fundamental problems of psychology into some questions of practical import in the study of mental faculties is not infrequent, and usually tends to produce confusion. It has often struck me that these problems have been inserted or have crept irrelevantly from time to time into inquiries held concerning the recognition and care of persons who are "mentally defective." As I was about to write this part of my lecture, and thinking of a short form in which I could express the ground on which most of the disputants I allude to could meet in peace, I came upon the deeply interesting address delivered last July by Sir Frederick Mott to the Congress of the Royal Sanitary Institute and found just what I wanted, at the beginning of that part of his address which dealt with "objective psychology."

"The furniture of the mind is the memory of the experiences of our life and the bonds that unite them: there can be no mind without memory and no memory without body. The furniture of the mind of primitive man" (which is what we study as mental qualities) "consists largely of the memory of experiences connected with the primal instinctive activities of nutrition by capture of food, of self-preservation, and avoidance of pain, of reproduction, and of the 'instinct of the herd' (or, as some would put it, of imitation). The civilised man is able, not only to store up and utilise his own experiences, but by means of language and abstract thought to associate these experiences with those of innumerable other human beings who live and have lived, and thereby to reason on a much higher plane, and utilise his psychic (or mental) energy in a multitude of refined ways for the ultimate ends of the primal instincts."

Whether we are all agreed or not to look upon the word "mind" as the name given to the sum of the items of furniture of the primitive mind thus set forth in brief by Sir Frederick Mott I think that most will agree that for most useful purposes we shall not quarrel about accepting the mental content which he signifies as sufficient to denote the essence of what we all mean in speaking of "mental phenomena," mental soundness, and mental defect. We can all find here, without philosophising more deeply, a sufficiently satisfactory basis for such a common conception of the general meaning of those psychological terms the use of which is unavoidable.

As regards the special meaning of the term "mental defect" as employed in the Act of 1913 it must be remembered that the Act technically recognises for the first time a large class of persons of all ages who were not held to be certifiable under previous Acts, but who, according to a mass of evidence produced by the Royal Commission's report which was the immediate occasion of the passing of the Act, needed legal control of some kind. It was at the instance of some experts in the study of the human mind, and, more especially, of certain public bodies of active social workers, that the Government in power

in the first quinquennium of this century felt it right, after taking counsel from various sources, including the Prison Commissioners, to appoint a Commission to inquire into the alleged necessity of fresh legislation in the matter of the "feeble-minded." The chief finding of the above-named public bodies at first, and subsequently of the Royal Commission after much inquiry, was that by far the largest number of these uncertified or uncertifiable persons were those generally known, in this country especially, as "feeble-minded." Possessing superior mental activities to those of persons known as "imbeciles" or "idiots," these feeble-minded, in virtue of this very superiority, were mostly left without care or control, although they were capable of causing a grave amount of social harm in many directions, and were unable to contribute to their own living without supervision. In America and elsewhere this large group of persons had been similarly recognised by experts and described as the highest grade of "imbeciles," or mental defectives not certified as insane. But the term "feeble-minded" was then in general use in America as including also "imbeciles," and even "idiots" of the lowest grade. At the present time, however, the term "moron" (a Greek neuter adjective, meaning "foolish") is now applied by many American writers to this high grade group which is called "feeble-minded" in the English Mental Deficiency Act. Yet it seems that the American and English terms "moron" and feeble-minded are not quite co-extensive in their denotation, for the former is more limited than the latter to cases evincing defect of the mental faculty of intelligence alone; and thus, apparently, less regard is paid to those persons who, with slight, or as some say, no remarkable defect of intelligence, show such constant and patent defects of conduct, (indicating disorder in the sphere of emotions, or of morals,) as render them dangerous members of society.

PRACTICAL DIFFICULTIES IN DEFINITION.

But what especially concerns us here, from the practical point of view, is that the Mental Deficiency Act requires a certain definition of "mental defect" to be attested in the certificate; whereas the Lunacy Act contains no definition of the terms "unsound mind" or "idiot" which denote the only classes of persons who can be certified under it. In the Lunacy Act there is no definition at all of Lunacy as a state or condition. Only in the Glossary to the Act it is said that "lunatic"—i.e., the word in the Act—means a "person of unsound mind or an idiot." It can scarcely be doubted, however, that some practical distinction was obscurely hinted at in this glossarial interpretation; it seems to indicate that the person of unsound mind had once been of a sound mind, and that the idiot was born an idiot; and thus to bring in the very old and somewhat practical division into two classes of people not "right in their minds." In more recent days a similar distinction is frequently made by the use of the somewhat loose or inaccurate terms of "acquired" and "congenital."

But although "idiots" can be certified under either the Lunacy or Mental Deficiency Act indifferently, this being a further instance of the regrettable separation of the two Acts—the higher-grade cases of mental defect, at least in England, cannot be certified under the Lunacy Act. I have been told by some, however, that the Scottish law is interpreted more elastically in this respect. The fact remains as a cause of difficult and confusion that the lunacy certificate is, in form mainly a statement of observed facts of conduct whereas the mental deficiency certificate may be, as it is often, taken as directing the certifier to testify that the condition of mind in question actually existed from birth or an early age; and this interpretation implies that this Act takes some cognizance of the further question of the origin or cause of the defect, which question is not raised or implied in the lunacy certificate.

I did not at first regard this last-mentioned imperfection of the Mental Deficiency Act as likely to cause very great difficulty, provided an intelligent and liberal interpretation of it were encouraged, though I detected the flaw when I saw the Act in its later form on its

appearance in 1913. But I have in subsequent years been convinced, by communication with some of the best experts whose duty it has been to certify under this Act, that the form of the certificate is a stumbling-block to many. I am of strong opinion that the mere descriptions of the various grades of mental defect which the Act is concerned with should never have been converted into a statutory definition or incorporated in the required certificate. This change was introduced first in the drafting of the Mental Deficiency Act of 1913, which followed on the Bill withdrawn from the House by the Secretary of State owing to opposition in the preceding year. I have previously dwelt at some length on this point in various papers published in the *Journal of Mental Science*, and also at several conferences concerning the diagnosis and treatment of the feeble-minded, and need say but little further on it now. There seems to be some reason to believe that this difficulty is becoming more or less recognised officially, and that in certifying cases of "mental deficiency" a clear statement of opinion, based on reasons clearly set forth, that the instance in question belongs to the category specified in the Act, is usually accepted as sufficient for the validity of the certificate. It is certainly true that the form of the lunacy certificate seems at first sight simpler, and thus the easier of execution, in order to meet the requirements of the Act; but it is also true that the lunacy certificate may not seldom present difficulties equal to those of the Mental Deficiency Act. The essence of the certificate in both cases must consist in reasoned opinion. In connexion with our present subject this difficulty of certification is mostly met with in the case of adult criminal defectives, whom it is desirous to certify for the purpose of placing them under more appropriate care and control than that of the prison regime. For in many instances it is impracticable to ascertain the facts of the early history of criminals, even of the sane.

THE CLASSIFICATION OF SOCIAL INEFFICIENTS.

The second point I have to note is this. Some writers have held that the recognition of "mental deficiency" according to the Act depends on the observation of defect of intelligence alone, but that such mental defectives do not form the whole of the subjects whom the Act is intended to control. Opinions, moreover, differ as to whether in the assessment of "mental deficiency" in any case, criminal or not, account should be taken of peculiarities of mental manifestations other than those clearly occurring in the sphere of intelligence; and this consideration is apt to lead to much controversy and confusion.

However, as far as the criticism of the Act itself is concerned, this much may be said on both of these objections: (1) There is no limitation in the Act of the meaning of the term "mental" to the sphere of thinking or intelligence alone—such limitation, that is to say, as would exclude regard of disorder or defect referable to the sphere of the emotions; and (2) the general test of mental condition by careful observation of conduct is practically set forth in the description given in the Act of the various groups of persons intended to be dealt with. This is also true in cases of certification under the Lunacy Act, in which it is not seldom very difficult or impossible to demonstrate any disorder in the sphere of thinking, and yet to find no practical hindrance to the diagnosis of "unsound mind."

It is illogical and erroneous to assume that the term "mental defect" does not cover defect of mind generally (as displayed in the various manifestations which most psychologists recognise as signs of mental action), and then to proceed to infer that there are large numbers of persons liable to be dealt with by the Act who are not mental defectives, but rather "social inefficients," on the ground that their grade of intelligence is not lower than that of average persons. Stress has been laid on this special interpretation of mental defect by those who hold that the "constitutional or natural factors of the various mental characters of men can be disentangled from those which are adventitious or due to the external influences of each individual's experience and circumstances;

and that then, being thus disentangled, the faculty of intelligence can be dealt with as a simple character not subject to further analysis. I shall have to deal with this point again later in reference to its bearing on the relation of mental defect to crime. It is enough to say now, in connexion with the criticisms I have mentioned, that there are many observers of mentally defective persons who hold strongly that even in the case of those numerous "social inefficients" who do not display at first sight any lack of intelligence evidence of some such lack can always be elicited; and, further, that few, if any, psychologists, however widely they may differ on many important points, confine their conception of "mind" to the faculty of intelligence alone. The time is now past when a definite "delusion" was required to be established for the validity of a lunacy certificate.

HEREDITY OR ENVIRONMENT?

My third and last preliminary note touches on some difficulties in connexion with the Mental Deficiency Act which have been caused by the introduction, not easily avoided, of biological questions on the origin of mental defect. This leads to discussions regarding heredity between those who hold widely different views as to the meaning of the word "heredity," and especially between those who, on the one hand, regard all mental characters that lend themselves to study as referable in origin either to natural transmission, or to acquirement derived from external influences, and those who, on the other hand, regard such mental characters as necessarily requiring both these elements. In the next lecture, when dealing especially with the criminal aspect of our subject, I shall refer again shortly to the eminent importance of the part played by external influences, or "environment," or "nurture" on the highly complicated nervous structures of man on which depend the various manifestations or functions which we call "mind." But here I wish to lay stress only on what may be called the "natural" or inborn element which in many patent cases of so-called "mental defect" is the immensely predominant factor. Experience makes specially evident the tendency of this class of cases to "run in families," and, in many of them, to be recognisable in very early life, even without showing any signs of significant physical defect. I do not imply, in saying this, that this class of very salient instances of mental defect are, psychologically or otherwise, distinguished in any hard-and-fast way from the minor specimens of mental defect of various grades which are less obvious to observation and thus do not attract general attention. The omnipresence of an inborn and transmissible element in the development of all mental characters whatever, whether in their healthy or pathological aspects, is not doubted by any scientific student of psychology, and need not be regarded as a matter for argument.

At present we have little definite knowledge of the cerebral and other organic conditions which necessarily underlie actual mental manifestations of all kinds and grades, average, excessive, or defective, common or rare, as the case may be; and we are forced to rely mainly on the careful clinical observation of individual cases for indications of such mental defect as seem to render it desirable or necessary that the subject of it should be specially treated. It may yet come within our knowledge that there is a definite association of some special brain or other organic conditions with certain differences of mental potentialities. Or further comparative study of the brains of human mental defectives and anthropoids may possibly throw more light than we have now on the question whether in some cases clearly manifest degrees of early deficiency may be truly reversible in character. But such knowledge, if gained, would not help us much towards making an accurate diagnosis of degrees of mental defect or disorder during the life of the subjects of it. In practice, however, as I have said, degrees of defect indicating certain lines of action in cases which come under question may generally be discovered by careful study of the individual's conduct and of his capacity to learn what is fundamentally requisite for a human being to know in

wholly the product of "natural" or "constitutional" defects, and but slightly, if at all, of the "force of circumstances" that have acted upon the individual law-breakers through their lives. But before I enter upon this main question I must mention a few initial difficulties which beset more or less the study and exposition of "mental defect" in its more special sense, without giving regard for the moment to its relation to crime. Some of these difficulties are of a practical, others of a theoretic, nature.

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Whether we are all agreed or not to look upon the word "mind" as the name given to the sum of the items of furniture of the primitive mind thus set forth in brief by Sir Frederick Mott I think that most will agree that for most useful purposes we shall not quarrel about accepting the mental content which he signifies as sufficient to denote the essence of what we all mean in speaking of "mental phenomena," mental soundness, and mental defect. We can all find here, without philosophising more deeply, a sufficiently satisfactory basis for such a common conception of the general meaning of these psychological terms the use of which is unavoidable.

As regards the special meaning of the term "mental defect" as employed in the Act of 1913 it must be remembered that the Act technically recognises for the first time a large class of persons of all ages who were not held to be certifiable under previous Acts, but who, according to a mass of evidence produced by the Royal Commission's report which was the immediate occasion of the passing of the Act, needed legal control of some kind. It was at the instance of some experts in the study of the human mind, and, more especially, of certain public bodies of active social workers, that the Government in power

in the first quinquennium of this century felt it right, after taking counsel from various sources, including the Prison Commissioners, to appoint a Commission to inquire into the alleged necessity of fresh legislation in the matter of the "feeble-minded." The chief finding of the above-named public bodies at first, and subsequently of the Royal Commission after much inquiry, was that by far the largest number of these uncertified or uncertifiable persons were those generally known, in this country especially, as "feeble-minded." Possessing superior mental activities to those of persons known as "imbeciles" or "idiots," these feeble-minded, in virtue of this very superiority, were mostly left without care or control, although they were capable of causing a grave amount of social harm in many directions, and were unable to contribute to their own living without supervision. In America and elsewhere this large group of persons had been similarly recognised by experts and described as the highest grade of "imbeciles," or mental defectives not certified as insane. But the term "feeble-minded" was then in general use in America as including also "imbeciles," and even "idiots" of the lowest grade. At the present time, however, the term "moron" (a Greek neuter adjective, meaning "foolish") is now applied by many American writers to this high grade group which is called "feeble-minded" in the English Mental Deficiency Act. Yet it seems that the American and English terms "moron" and feeble-minded are not quite co-extensive in their denotation, for the former is more limited than the latter to cases of convincing defect of the mental faculty of intelligence alone; and thus, apparently, less regard is paid to those persons who, with slight, or as some say, no remarkable defect of intelligence, show such constant and patent defects of conduct, (indicating disorder in the sphere of emotions, or of morals,) as render them dangerous members of society.

PRACTICAL DIFFICULTIES IN DEFINITION.

But what especially concerns us here, from the practical point of view, is that the Mental Deficiency Act requires a certain definition of "mental defect" to be attested in the certificate; whereas the Lunacy Act contains no definition of the terms "unsound mind" or "idiot" which denote the only classes of persons who can be certified under it. In the Lunacy Act there is no definition at all of Lunacy as a state or condition. Only in the Glossary to the Act it is said that "lunatic"—i.e., the word in the Act—means a "person of unsound mind or an idiot." It can scarcely be doubted, however, that some practical distinction was obscurely hinted at in this glossarial interpretation; it seems to indicate that the person of unsound mind had once been of a sound mind, and that the idiot was born an idiot; and thus to bring in the very old and somewhat practical division into two classes of people not "right in their minds." In more recent days a similar distinction is frequently made by the use of the somewhat loose or inaccurate terms of "acquired" and "congenital."

But although "idiots" can be certified under either the Lunacy or Mental Deficiency Act indifferently—this being a further instance of the regrettable separation of the two Acts—the higher-grade cases of mental defect, at least in England, cannot be certified under the Lunacy Act. I have been told by some, however, that the Scottish law is interpreted more elastically in this respect. The fact remains as a cause of difficulty and confusion that the Lunacy certificate is, in form, mainly a statement of observed facts of conduct: whereas the mental deficiency certificate may be, and is often, taken as directing the certifier to testify that the condition of mind in question actually existed from birth or an early age; and this interpretation implies that this Act takes some cognizance of the further question of the origin or cause of the defect, which question is not raised or implied in the Lunacy certificate.

I did not at first regard this last-mentioned imperfection of the Mental Deficiency Act as likely to cause very great difficulty, provided an intelligent and liberal interpretation of it were encouraged, though I detected the flaw when I saw the Act in its later form on its

appearance in 1913. But I have in subsequent years been convinced, by communication with some of the best experts whose duty it has been to certify under this Act, that the form of the certificate is a stumbling-block to many. I am of strong opinion that the mere descriptions of the various grades of mental defect which the Act is concerned with should never have been converted into a statutory definition or incorporated in the required certificate. This change was introduced first in the drafting of the Mental Deficiency Act of 1913, which followed on the Bill withdrawn from the House by the Secretary of State owing to opposition in the preceding year. I have previously dwelt at some length on this point in various papers published in the *Journal of Mental Science*, and also at several conferences concerning the diagnosis and treatment of the feeble-minded, and need say but little further on it now. There seems to be some reason to believe that this difficulty is becoming more or less recognised officially, and that in certifying cases of "mental deficiency" a clear statement of opinion, based on reasons clearly set forth, that the instance in question belongs to the category specified in the Act, is usually accepted as sufficient for the validity of the certificate. It is certainly true that the form of the lunacy certificate seems at first sight simpler, and thus the easier of execution, in order to meet the requirements of the Act; but it is also true that the lunacy certificate may not seldom present difficulties equal to those of the Mental Deficiency Act. The essence of the certificate in both cases must consist in reasoned opinion. In connexion with our present subject this difficulty of certification is mostly met with in the case of adult criminal defectives, whom it is desirous to certify for the purpose of placing them under more appropriate care and control than that of the prison regime. For in many instances it is impracticable to ascertain the facts of the early history of criminals, even of the sane.

THE CLASSIFICATION OF SOCIAL INEFFICIENTS.

The second point I have to note is this. Some writers have held that the recognition of "mental deficiency" according to the Act depends on the observation of defect of intelligence alone, but that such mental defectives do not form the whole of the subjects whom the Act is intended to control. Opinions, moreover, differ as to whether in the assessment of "mental deficiency" in any case, criminal or not, account should be taken of peculiarities of mental manifestations other than those clearly occurring in the sphere of intelligence; and this consideration is apt to lead to much controversy and confusion.

However, as far as the criticism of the Act itself is concerned, this much may be said on both of these objections: (1) There is no limitation in the Act of the meaning of the term "mental" to the sphere of thinking or intelligence alone—such limitation, that is to say, as would exclude regard of disorder or defect referable to the sphere of the emotions; and (2) the general test of mental condition by careful observation of conduct is practically set forth in the description given in the Act of the various groups of persons intended to be dealt with. This is also true in cases of certification under the Lunacy Act, in which it is not seldom very difficult or impossible to demonstrate any disorder in the sphere of thinking, and yet to find no practical hindrance to the diagnosis of "unsound mind."

It is illogical and erroneous to assume that the term "mental defect" does not cover defect of mind generally (as displayed in the various manifestations which most psychologists recognise as signs of mental action), and then to proceed to infer that there are large numbers of persons liable to be dealt with by the Act who are not mental defectives, but rather "social inefficients," on the ground that their grade of intelligence is not lower than that of average persons. Stress has been laid on this special interpretation of mental defect by those who hold that the "constitutional or natural factors of the various mental characters of men can be disentangled from those which are adventitious or due to the external influences of each individual's experience and circumstances;

and that then, being thus disentangled, the faculty of intelligence can be dealt with as a simple character not subject to further analysis. I shall have to deal with this point again later in reference to its bearing on the relation of mental defect to crime. It is enough to say now, in connexion with the criticisms I have mentioned, that there are many observers of mentally defective persons who hold strongly that even in the case of those numerous "social inefficients" who do not display at first sight any lack of intelligence evidence of some such lack can always be elicited; and, further, that few, if any, psychologists, however widely they may differ on many important points, confine their conception of "mind" to the faculty of intelligence alone. The time is now past when a definite "delusion" was required to be established for the validity of a lunacy certificate.

HEREDITY OR ENVIRONMENT?

My third and last preliminary note touches on some difficulties in connexion with the Mental Deficiency Act which have been caused by the introduction, not easily avoided, of biological questions on the origin of mental defect. This leads to discussions regarding heredity between those who hold widely different views as to the meaning of the word "heredity," and especially between those who, on the one hand, regard all mental characters that lend themselves to study as referable in origin either to natural transmission, or to acquisition derived from external influences, and those who, on the other hand, regard such mental characters as necessarily requiring both these elements. In the next lecture, when dealing especially with the criminal aspect of our subject, I shall refer again shortly to the eminent importance of the part played by external influences, or "environment," or "nurture" on the highly complicated nervous structures of man on which depend the various manifestations or functions which we call "mind." But here I wish to lay stress only on what may be called the "natural" or inborn element which in many patent cases of so-called "mental defect" is the immensely predominant factor. Experience makes specially evident the tendency of this class of cases to "run in families," and, in many of them, to be recognisable in very early life, even without showing any signs of significant physical defect. I do not imply, in saying this, that this class of very salient instances of mental defect are, psychologically or otherwise, distinguished in any hard-and-fast way from the minor specimens of mental defect of various grades which are less obvious to observation and thus do not attract general attention. The omnipresence of an inborn and transmissible element in the development of all mental characters whatever, whether in their healthy or pathological aspects, is not doubted by any scientific student of psychology, and need not be regarded as a matter for argument.

At present we have little definite knowledge of the cerebral and other organic conditions which necessarily underlie actual mental manifestations of all kinds and grades, average, excessive, or defective, common or rare, as the case may be; and we are forced to rely mainly on the careful clinical observation of individual cases for indications of such mental defect as seem to render it desirable or necessary that the subject of it should be specially treated. It may yet come within our knowledge that there is a definite association of some special brain or other organic conditions with some special brain or other organic potentialities. Or further certain differences of mental potentialities. Or further comparative study of the brains of human mental defectives and anthropoids may possibly throw more light than we have now on the question whether in some cases clearly manifest degrees of early deficiency may be truly reversional in character. But such knowledge, if gained, would not help us much towards making an accurate diagnosis of degrees of mental defect or disorder during the life of the subjects of it. In practice, however, as I have said, degrees of defect indicating certain lines of action in cases which come under question may generally be discovered by careful study of the individual's conduct and of his capacity to learn what is fundamentally requisite for a human being to know in

order to live sanely and more or less successfully with his fellows. And this can be achieved without necessary reference to any strictly rigid standard of mental capacity. I cannot enter here into the highly interesting question of the various tests which have been proposed for ascertaining, by comparison with a standard based on the average intellectual capacity of growing children, the capacity of apparently defective persons of any age; but I may say, only by the way, and judging from the information I have gathered from others, and from reading, rather than from my own experience, that short of being regarded as providing any royal road to certification under the Act, or as an authoritative basis for evidence given in a court of law, such tests are likely to prove of considerable use in recording cases with a view to making reports for the preliminary grading of children in classes or for serving as a help to observers towards recalling results of the successive interviews which are mostly necessary in arriving at any practical decision.

LECTURE II.—ON THE RELATION OF MENTAL DEFECT TO CRIME. (Delivered on Nov. 1st.)

I reviewed in the last lecture the matter of mental defect generally, as far as seemed necessary before considering my main subject; and then commented on some of the difficulties that are met with in dealing with mentally defective prisoners from the point of view of their description, care, and control. I begin this lecture with a few explanatory words on what I mean by crime, as introductory to the subject of its relation with mental defect. There is a legal, and also a psychological—moral, and more or less popular—meaning of the term "crime"; and these two meanings frequently tend to become mixed in writing and in thinking. In the legal sense crime means offence against certain existing laws, and "criminal responsibility" thus means liability to punishment under those laws. In the wider sense crime implies conduct injurious to society, and, as Dr. Mercier has said in his recent book on "Crime and Criminals," "by this must be understood the society to which the criminal belongs." Thus the more comprehensive concept of a "criminal" is that of a person who acts wilfully in a manner which is injurious to society, one in whom self-regarding conduct is frequently preponderant over social conduct. In many questions of the responsibility or liability to punishment of any individual either charged with a definitely legal crime, or deemed to be guilty of any important anti-social act, the verdict, be it that of a court of justice or of the sense of social justice alone, must depend more or less on whether or no the accused was fully aware of the nature of the wrong he did, and appreciated the circumstances in which it was done. As a matter of fact, while legal decisions on these do often depend to a considerable extent on these considerations, "responsibility" for crime in the wider sense has reference wholly, as Sir James Fitzjames Stephen said, to the law as it ought to be. I have no intention to discuss further the great question of criminal responsibility, but have merely mentioned it now when speaking of the different senses in which the terms "crime" and "criminal" are used and sometimes confused.¹

I purpose, in what follows, to employ these terms generally in the wider sense which I have noted, and to apply the words "convicted criminal," "convicts," or "prisoners" to such offenders who have been convicted of law-breaking. It is imperative, in considering the relation of mental defect to crime, to adopt this comprehensive meaning of the word crime. Law of any one period does not cover all actions which are clearly harmful to society; but it must include some actions which the contemporary social conscience would not

regard as criminal offences—e.g., some breaches of police regulations, &c. In dealing, however, with the question of mental defect as a factor in criminal action, or in the production of criminal men in the mass, it is possible, convenient, and, for many purposes, sufficient to take under survey only such criminals of all kinds as have been convicted and punished as law-breakers. But we must always bear in mind that large numbers, similarly criminal, are not detected, and that, especially among persons of so-called superior education, there are many whose offences have been spread over several years before detection leads to conviction. Such persons may well be regarded as habitual criminals. But the present law relating to habitual criminals (The Prevention of Crime Act, 1909) provides that no one is amenable to preventive detention unless he is charged with being an habitual criminal simultaneously with a charge of having committed a fresh offence. And for this purpose the term "habitual criminal" is strictly defined in this Act.

At the outset of my last lecture I indicated that a significant proportion of convicted criminals, as compared with the average population, are shown to be either certifiably insane or the subject of such pronounced mental defect—evidenced by their general conduct, apart from consideration of the particular crime of which they are convicted—as to need special control. The popular inference regarding criminals who have committed homicide or any specially revolting or apparently motiveless crime, that they are "out of their minds," is often corroborated by facts observed after their arrest or soon after their conviction. And in many other cases of crime of all kinds and degrees of gravity insanity or other form of mental defect is frequently recognised by medical officers when criminals come into prison after a trial during which no such defence had been raised. It must be noted here that besides the cases of certifiable insanity above mentioned it has been computed by various observers of much experience in the convict prisons that there are from 10 to 20 per cent. of men convicted of crime serious enough to entail sentences of penal servitude of from three years and upwards who are quite incapable of any conduct which would fit them for any form of social life, and are devoid of such mental qualities as would prevent them yielding to common temptations to do some kind of harm to others. Many or most of these cases are doubtless referable to the group of mental defectives generally recognised as congenital in origin. Now, though I am by no means intending here to attribute to this group any special character relative to the origin of their defect, which may not exist in some degree in all other less-marked cases of mental defect, I urge that taking this group and the technically "insane" group together, there is ample justification for regarding the mental disease, disorder, or defect which is inferred as existing in these cases, to be the chief cause of the criminal conduct displayed. In all forms of mental defect the orderly control over the action of the human organism is lessened or deranged or absent; and this fact alone is adequate to explain many criminal actions, all of which involve the dominance of instinctive and other self-regarding motives over those acquired motives which serve to regulate the conduct of the major part of the community which avoids, or is not convicted of, crime. This striking association in many cases of mental defect and disorder with the commission of crime, as well as the inference that defect and crime stand in direct relation as cause and effect, are recognised explicitly or implicitly by most students of criminals, and this matter needs no further exposition. Thus far, we see that an important part played by mental defect in the production of a certain proportion of criminals is clearly illustrated by a mixed group of prisoners whose criminal conduct may be regarded as often and to a large extent referable to pathological or aberrant conditions of organic origin, issuing, with respect to mental results, in the form of evident loss of duly integrated nervous control. While the make-up of everyone is the outcome of his inborn capacities and of

¹ For a clear and highly instructive consideration of "Criminal Responsibility" involving the question of the law as it is, and the law as it ought to be, there is, I think, nothing better than Sir James Fitzjames Stephen's "History of the Criminal Law," and Dr. Mercier's work on "Criminal Responsibility" (1905), with comments on the former book.

the influences exerted on their development by use and experience—or "education" in its most comprehensive sense—the majority of these defectives may be regarded as mainly the victims of their natural lot.

THE CONDUCT OF THE MAIN BODY OF CRIMINALS.

α We have now to consider the case of the main body of criminals: not only those sentenced to long periods of penal servitude: the large majority of whom, probably about 80 per cent., are not the subjects of such a grave degree of mental defect as we have described. The conduct of most of these men does not suggest that they differ greatly or at all in general intelligence from the bulk of the unconvicted population of social grades and circumstances similar to their own. We shall thus now be chiefly concerned with convicted criminals of all kinds and grades who, whatever may be the origin of such mental defect as might possibly, after careful examination, be attributed to them, do not give us cause to regard them as "irresponsible"—i.e., not "rightly liable to punishment" by the law as it is. It is clearly necessary in any endeavour to form an approximate opinion of the rôle of mental defect in the production of crime in general to bear in mind that, although this large class must form the chief material that concerns us, it is practically impossible—mainly because of the very short sentences of most who compose it—to make any such trustworthy study of their individual characters as may be practicable in our convict prisons where the men can be observed for long periods and interviewed frequently. The necessity for bearing this in mind struck me forcibly when reading the interesting work on the "Individual Delinquent," by Dr. William Hooley, of Chicago, which contains a mine of information on what may be termed the clinical histories of many criminals. Valuable these histories undoubtedly are, owing to the careful observation and thought employed in their production. But what relation in number these histories bear to any given large number of prisoners who did not undergo such an examination does not appear. The whole collection of cases seems to have been made expressly for the excellent purpose of emphasising the importance of minute study of every delinquent before a just estimate can be formed of the ingredient factors of his crime and of his appropriate treatment, rather than with the object of estimating the extent and force of mental defect *per se* in producing crime, as compared with that of the extent and force of external influences working on the criminal's inborn capacities.

Since time will not allow me even to sketch an account of the various doctrines that have been promulgated concerning the part played in crime-production by "natural" or inborn qualities on the one hand, and by "nurture" or environmental influences on the other, I may say here that the extremist views, as formerly expressed by their supporters, are now held by but very few, and that we may practically disregard the exclusive theory of the "born criminal" as held by the one extreme school, as equally discredited with that of the opposite school which taught that the criminal is "made," and is wholly the creature of his social environment, education, and experience.

THE FACTORS OF CRIMINAL ACTION.

In proceeding with the consideration of the factors of criminal action I shall find it necessary to differ only from that opinion which attributes the genesis of crime mainly, if, indeed, not entirely, to certain inferiorities of constitutional or natural origin, and takes little or no account of external influences as bearing on the development of the natural capacities, and consequently, on the actual mental characters of men as we can observe and study them.

My own view, formed after a fair amount of personal experience in the study of criminals, and after giving regard to what can be learned concerning the development of the "mind" from biological and psychological data, is this: the mental make-up of criminals generally, like the mental make-up of all men, depends on the inborn capacities or possibilities of development as well as on the multiform agencies from without which act on this germinal material and may influence its develop-

ment and give it a bias in many directions. This statement is, indeed, applicable to physical and mental characters generally, and very especially to human mental characters. These must all be regarded as neither wholly "natural" or "constitutional," nor as wholly "nurture" or "acquired" in origin; they are always the product of both of these factors, though doubtless in varying proportions in different cases.

Regarding as I do the process of development of the human mind as having an essential bearing on the special matter now under consideration, I find reason for making the following condensed quotations in illustration of what I have said. Sir Ray Lankester, in his presidential address on the Advance of Science to the British Association in 1906 said, while speaking of the science of psychology—

"The most important general advance in this science seems to be the recognition that the mind of the human adult is a social product; that it can only be understood in relation with the special environment in which it develops, and with which it is in perpetual interaction."

Lankester says further, in quoting from a paper he communicated to the Biological Society of Paris in 1899:—

"In discussing the significance of the great increase in the size of the cerebral hemispheres in man, as compared with Eocene, mammals, and in man as compared with apes, I came to the conclusion that the power of building up appropriate cerebral mechanisms in response to individual experience or what may be called "educability" is the quality which characterises the larger cerebrum, and is that which has led to its selection, survival, and further increase in volume. The character which we describe as educability can be transmitted; it is a congenital character. But the results of education cannot be transmitted. In each generation they have to be acquired afresh. On the other hand, the nerve-mechanisms of instinct are transmitted; they are not acquired by the individual in relation to his particular needs."

And Sir Archdall Reid wrote on similar lines in his book "The Present Evolution of Man," published in 1896, and later in the "Laws of Heredity" in 1907. In the latter, when speaking of the development of mind, Reid maintains, by an array of evidence, that the great peculiarity of the human being as compared with other animals is that the distinctive characters of his mind arise much less, as he expresses it, under the stimulus of nutriment alone, and much more under that of use and experience; that his instincts are fewer, while his capacity for making acquisitions is infinitely greater and more variable; and that since nature has rendered man transcendently responsive to the "nurture" of use and experience, the question, so often asked, whether "nurture" or "nature" plays the most important part in the development of the human mind has really but little meaning.

To return now to the subject of criminals. With respect to some, of whom I have already spoken, the dominance of the mental defect (which I suppose all observers, whatever their views may be as to the factors of crime, will regard as natural or constitutional, unless there be reason to attribute it to some other process acting on the individual after conception), appears so prominent as to render insignificant any consideration of the action of the environment. But, generally speaking, I believe that in studying the various mental qualities of man as we recognise them it is impossible so to handle them for the purpose of any investigation as simply constitutional or inborn, and taking no account of the external influences on their actual development, which I hold must have a large share in the formation of the mental quality or character in question. Whether this view be correct or not, it must apply to the study of criminals in the mass as well as of any other men; and, on the assumption that it is correct, it is justifiable to say that with some exceptions, already noted, it is not practicable to assess with any precision the proportionate influences of the two necessary factors of "heredity" and "environment" in the development of the minds of criminal men. With the exception, then, of a certain minority of criminals who are the subjects of a high degree of mental incapacity in some form or

other, I am of opinion that the bulk of convicted criminals are not so defective in mind as to prevent their criminal conduct, which is without question partly the expression and result of their inborn mental capacities, from being regarded in respect of its origin in the same way as the conduct and mental qualities of all other men would be regarded, psychologically or biologically. This view was based mainly, but not wholly, on my observations of many prisoners convicted of serious crimes and sentenced to long terms of imprisonment, the large majority of whom did not evince any marked signs of grave mental defect either by their conduct or their talk; I thus found further reason to question the solution of crime-production by the theory of constitutional defect per se.

From about nine years ago, when the new Preventive Detention Prison at Camp Hill in the Isle of Wight was ready to receive habitual criminals sentenced under the Act of 1908 for "the prevention of crime," in the course of my joint work with some others in advising the Home Office in the matter of releasing some of these convicts on a special and strict licence I have had much increased opportunity of lengthy interviews with large numbers of prisoners who, from the quality of their records alone, might well be reckoned among the worst of their kind. Among these men it might be expected by many to find a considerably greater percentage of mental defectives than in other collections of prisoners. They had all served previous sentences of penal servitude, some of them as many as four or five, and a considerable majority of them had begun their career of crime in childhood or early youth. The conditions of their detention allowed of more freedom and of far more frequent and intimate observation by the governor and the medical staff and others than are possible in the ordinary prisons. A return recently given to me by the medical officer, Dr. James Murray, of the "mental cases" of various kinds that have been classed as such in this prison shows that out of 475 prisoners of the habitual class I have described who were received from the courts since 1912, 29 were regarded as unquestionably defective, 11 of whom were certified under the Mental Deficiency Act, 1913; 6 were placed apart as doubtful cases and at the time of the return were still under special observation; and 14 were certified under the Lunacy Act as insane. Roughly, the percentage among these men is a little over 10, with various kinds of definite mental defect—i.e., less than the average estimate made of such cases among prisoners generally. These figures, applying only to cases of a prominent kind, have no great value in regard to the question of the mental powers of convicted prisoners as a class in comparison with those of the general law-abiding population; but they are very significant in so far as they show that a special group of 475 recidivist convicts, many of them with records of an abundance of serious crimes and of lives of which more than half had been spent in prison, was not more numerous signalled by definitely recognised mental defect than the less selected mass of prisoners in general.

STATISTICAL STUDY OF THE ENGLISH CONVICT.

In my further consideration of the part played by "mental defect" as a factor in the production of criminals, it is necessary to make some comments on the extensive and well-known work by the late Dr. Charles Goring, entitled "The English Convict—A Statistical Study," published by the Government in 1913, and again, in an abridged form, in 1919. This work had its origin in a certain number of anthropological observations made by Dr. G. B. Griffiths, of Parkhurst Convict Prison, some 19 years ago, mainly directed towards checking the facts alleged and the conclusions arrived at by the school of criminologists generally known as followers of the Italian writer, Cesare Lombroso. In process of time these observations were continued by other medical officers of prisons, but at last the scope of them was much extended, and the further conduct of the work was handed over entirely to Dr. Goring, who had followed Dr. Griffiths at Parkhurst Prison. The completed sets of very numerous observations made on a total of 3000 convicts were then tabulated and dealt

with biometrically by Dr. Goring at University College, London. The immense amount of laborious care and ability displayed in this work is widely recognised, and the value of the information it contains is undoubtedly great. Its reputation, moreover, makes it impossible now for anyone who touches on this subject to pass it by without due attention; and I regret that, owing to the limit of this lecture, I must perforce confine myself only to some points in this treatise on which I differ from the author. Still more do I regret the incident that a controversy on those points was still proceeding in the *Journal of Mental Science* between Dr. Goring and myself when, last year, almost simultaneously with the publication of my reply to him, I received the unexpected and grievous news of his death.

The object of this extensive research is stated by the author to be twofold: (1) to clear from the ground the remains of the old criminology; (2) to found a new knowledge of the criminal upon facts scientifically acquired and upon inferences scientifically verified. As to the first-named topic no question of the author's methods and results need arise. It is with his handling of the second alone that we are directly concerned. It must be understood that the comments to which I must confine myself cannot approach to a full consideration of the matter dealt with by Dr. Goring under the heading I have mentioned. I can but touch on those parts only which seem to me of paramount importance.

(a) At the outset of this work it is stated by the author that

"it is impossible to assume a priori that the criminal is either 'born' or 'made,' or to what extent criminality results either from a constitutional quality of moral fibre or from purely traditional acquirement." "In other words," he says, "all we can assume, and what we must assume, is the possibility that constitutional as well as environmental factors play a part in the production of criminality. We are forced to a hypothesis of the possible existence of a character in all men which, in the absence of a better term, we call the criminal diathesis." And, further, he says that "we shall have to pursue our research with a mind open to the possibility that innate or constitutional as well as environmental factors play a part in determining the fate of the criminal." Later, in his opening chapter, he expresses the opinion that the conclusion is unavoidable that the "criminal diathesis," although present in greater average intensity among the lawless, is a certain constitutional fact common to the whole of humanity. But the author expressly states that he makes no presumption as to what qualities constitute the "criminal diathesis," the object of his inquiry being "to find out how far, as measured by criminal records, it (the 'criminal diathesis') is associated with environment, and training, with stock, and with the physical attributes of the criminal."

It seems to me after studying these statements repeatedly that this conception of a "criminal diathesis," which is assumed to imply (whatever its component qualities may be shown to be) a constitutional or innate tendency, common to all men but existing in a greater average degree among law-breakers, is obscure, and tends to confuse the issue of the ultimate conclusion of the argument which is directed towards the founding of a new knowledge of the criminal upon facts scientifically acquired and upon inferences scientifically verified. If this assumed and innate factor of a criminal diathesis were not resolved, as we shall presently see it has been resolved, to a certain extent by the author into its component elements, it would amount to little more than a statement to the effect that the greater the constitutional tendency to crime, the greater would be the actual commission of crime. With this statement all could agree; it would be self-evident, though not elucidatory. We shall presently find, however, although further factors in the make-up of criminals are set forth by the author in this investigation as differentiating them from the non-criminal population, that one of those differentiating factors is an increased possession of wilful antisocial proclivities. So that the constitutional item of "wilful antisocial activities" comes in to form one element, apart from the others, in the definition of the "criminal diathesis"; and this diathesis itself is posited at the outset as constitutional or innate.

With part of what is said in the quotations I have just made I am in accord. I, too, start with an assumption, not of the "criminal diathesis" described by Dr. Goring as necessary to his argument, but of the position that all men are potential criminals, given the stimulus or temptation adequate to induce antisocial action. I think this is an inevitable assumption. No matter how "advanced" the state of "civilisation" or moralisation, or however great the so-called "social instinct," or, as I prefer to call it, the instinctive tendency to imitate and follow the majority may be, each individual human animal must still make efforts to keep his social conduct up to such a mark as to maintain within due bounds his primary and self-regarding desires and impulses. A man that can acquire and retain this faculty will, as a rule, avoid crime; and he will necessarily be the possessor of a better organised brain and nervous system than the man who cannot. The absence of the inheritable factor in the production of a criminal or of an average moral man is alike inconceivable. I have already enlarged on this point in my first lecture, where I also insisted on the co-operation of other factors as equally necessary, also in varying degree, to the production of the observable characters of nearly all men—i.e., of all men described precisely by the author of the "English Convict," as "normal," including, of course, criminal men. And just as under sufficient stress the tendency of the human brain to become disordered may be demonstrably actualised, so may a breakdown take place in that subtle mechanism which underlies and actuates the conduct and characters of men.

(b) The contents of Dr. Goring's work consist of a minute and wellnigh exhaustive study, by means of the biometrical method of statistics, of the following matters, relevant to his inquiry, and bearing closely on his exposition of what he terms the "criminal diathesis." These consist of (1) the physique of criminals; (2) age as a biological factor in crime; (3) the criminal's vital statistics—health, disease, mortality; (4) mental differentiation of the criminal; (5) the influence of the force of circumstances on the genesis of crime; (6) the fertility of criminals; and (7) the influence of heredity on the genesis of crime.

FACTORS OF CRIME PRODUCTION.

As a final result of the examination of his extensive observations under each of these headings the author arrives at the following conclusions:—

(1) "That there is a physical, mental, and moral type of normal person who tends to be convicted of crime—i.e., that, on the average, the criminal of English prisons is markedly differentiated by defective physique, as measured by stature and body-weight; by mental capacity, as measured by general intelligence; and by increased possession of wilful antisocial proclivities, as measured, apart from intelligence, by length of sentence to imprisonment." (2) "That relatively to the origin in the constitution of the malefactor, and especially in his mentally defective constitution, crime is only to a trifling extent (if to any), the product of social inequalities, of adverse environment, or of any other manifestations of what may be comprehensively termed the force of circumstances."

It is clear that these conclusions must be accepted, provided that the premises are not questionable. But the premises, in so far as they concern the mental element in the production of crime, involve the postulated assumption: (1) that the factor of "mental defect" stands for defect of intelligence alone and is of innate origin; (2) that the remaining factor, described as "increased antisocial proclivity," is also of innate origin; and (3) that these two innate factors have been correctly established as at least predominant or as sole factors in crime production by the exclusion of all significant external influences which, as the author himself has said, ought to be regarded at the beginning of an inquiry as possible factors in determining the fate of the criminal or, in other words, as part factors of the criminal diathesis.

That I am of opinion that Dr. Goring has not succeeded in estimating "mental capacity" by his method of measuring "general intelligence" or, consequently, of establishing the wholly constitutional nature of "mental defect" will be apparent from what I have already said.

As regards the factor of increased possession of wilful antisocial proclivities as measured by length of imprisonment, it seems to me that under this title are gathered other characters, generally regarded as mental by psychologists, but not reckoned as such by the author, and expressly excluded by him from his own concept of "mental defect." It regards this innate or "constitutional" factor as in a great degree concerned with the criminality of such malefactors as are not significantly characterised by either defective physique or defective intelligence, but only by the possession in excessive measure of this assumed innate quality which is not otherwise defined, and appears to me to lack any explanatory value. Surely apart from all discussion about "mental defect" as a factor of crime, wilful antisocial activity is crime. Shorn of his wilfulness the law-breaker is not criminal, though he may be such in the technical sense. But without this assumption of innate "wilful antisocial proclivity" on the part of the considerable proportion of criminals who show no defect either of physique or of intelligence, this class of criminals could not be regarded as the subjects of any constitutional mark relevant to their criminal conduct.

It is because I deem that some of the collected facts as dealt with in this research by the biometrical method are open to much dispute, and consequently entail some very disputable and, in my opinion, erroneous conclusions, that I have thought it necessary to make these comments, believing that the method employed is not fitted to the whole of the material handled by it in this investigation. Much of the material differs widely from that which can be definitely estimated by measurement. In this instance, indeed, the method, as Huxley said concerning another method and another matter, "may be compared with a mill of exquisite workmanship which grinds material to any degree of fineness, but what comes out of it depends upon what is put in."

While believing that in the production of the great majority of convicted criminals of all kinds an important part is played by the innumerable and often unobservable influences from without on the development of each individual's mental capacities, and thus on his conduct, I do not question the conclusion arrived at by a different route in "The English Convict," that convicted criminals are, as a body, of inferior intelligence to that of the average members of the community. Indeed, this is probably true of the mass of convicted criminals everywhere, who as a body, in the local prisons all over the country, give the impression to those conversant with them that they are more stupid than the majority of people of a similar status. Considering that a very large number of crimes are committed without detection of the perpetrators, it is at least highly probable that convicted criminals would be on the average much less alert, mentally, than those who succeed in eluding the police.

CONCLUSION.

I trust that in these lectures I have made it clear that my object has been to give reasons for my opinion that criminal conduct is dependent on the innate capacities of each individual as developed and actuated by the innumerable influences which act upon these capacities; and that the actual mental characters or qualities that we observe are the resultant of these factors. My position has been seriously misrepresented as an appeal to the emotions in favour of the notion that crime is wholly the product of environment, and as a denial of the part played by the constitutional or innate factor in the make-up of the criminal. But in stating my judgment that a theory of criminality which virtually excludes environmental influences in the development of the mental, moral, and social qualities in man, would necessarily lead to such a conception of crime as would logically, and I think practically, tend to discourage active measures directed towards reclaiming the criminal, I am not influenced, as has been suggested, by any consideration whatever as to the consequences of this or any other theory, but solely by my belief that this theory itself lacks both scientific truth and probability.

986 THE LANCET.] DR. R. A. HENDRY: PREGNANCY AND LATENT SYPHILIS.

In my opinion the proper and fruitful understanding and treatment of criminals depends mainly on the careful study of the individual offender. I am further of opinion that this consideration should influence far more than it does at present the sentences awarded in courts of law, which are to an undue extent based on the class of crime committed, irrespectively of the history of the accused person, and of the circumstances in which the offence took place. I think, further, that no judge should pronounce any sentence of imprisonment unless he is personally acquainted by visiting prisons with the actual nature of the terms of imprisonment entailed by his sentences.

It was an unpleasant surprise; only three children out of eight lived for more than a few months; many of the labours were instrumental, all were difficult; with this history pelvic contraction was sought and confirmed; an induction at 36 weeks was followed by a reasonably easy labour, but the 6½ lb. male infant only lived three hours. The Wassermann then examined, was "positive"; the foetus, in spite of an unusually thorough examination, was negative.

Ck suggests syphilitic infection after the first pregnancy; with a "negative" Wassermann, treatment was limited to iron and was followed by a healthy and thriving infant.

TABLE I.

OBSTETRICAL HISTORIES

Co	• • • • •	W-	W(h)-
Da	○ • • • •	W-	W(h)-
		W+	

CONTRIBUTIONS TO A DISCUSSION ON
PREGNANCY AND LATENT SYPHILIS.
Read at the Meeting of the Section
of the Royal Society

CONTRIBUTION TO THE
PREGNANCY AND LATENT STAGE
Being Papers Read at the Meeting of the Section of
Obstetrics and Gynaecology of the Royal Society
of Medicine on Nov. 4th, 1920.

I.—THE INTER-RELATIONSHIP BETWEEN
PREGNANCY AND SYPHILIS.

BY R. A. HENDRY, M.D. LOND.,
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INFIRMARY, LIVERPOOL.

ALTHOUGH so much has been written concerning the inter-relationship between pregnancy and syphilis, I feel that no apology is needed for bringing forward data collected at some auto-natal clinics in Liverpool between April, 1916, and July, 1920. The cases which I am bringing forward relate to what may be called latent syphilis, there in that, apart from the effect on the pregnancy, there are no active clinical symptoms or signs of syphilis. As this condition excludes primary and secondary syphilis, diagnosis is the obvious preliminary step—and the obvious preliminary difficulty. For its solution we have to rely on: (1) the clinical; and (2) the laboratory evidence; these may be further subdivided into the history of infection and the past obstetrical history, together with the Wassermann reaction and the examination of stillbirths, abortions, and placentae. A history of primary or secondary syphilis is difficult and rarely possible to obtain; its absence is of no value.

Value of Obstetrical History.

Value of Obstetrical History.

In Table I., graphically expressed, is a series of obstetrical histories selected from cases investigated, some syphilitic, others non-syphilitic.

The feature of the first eight is accompanied by a living infant.

The absence of syphilis is sufficiently indicated by the fact that the maternal death from cerebral hemorrhage, a case of chronic nephritis, no evidence of Wassermann in both husband and the repeatedly negative Wassermann in both living and wife (moreover, the father had six healthy living children by his first wife); and in Da by the lack of any evidence of syphilis in the last three fetuses born between the twenty-fourth and twenty-eighth week of gestation, and by the repeatedly negative Wassermann in husband and wife.

In Wa a non-syphilitic, macerated, premature foetus following two abortions accompanies a "Positive + " Wassermann.

Y and F are sisters, ages 24 and 25. They are third month, 12 and 18 months ago. The Wassermann in one is third month, 12 and 18 months ago. They are "negative," in the other "positive +."

"negative," in the other "positive +." have had six and five abortions in the third and seventh months pregnant. The Wassermann in each. They have had six and five abortions in the third and seventh months pregnant. The Wassermann in each. They have had six and five abortions in the third and seventh months pregnant. The Wassermann in each.

E and Hg have had six and five abortions respectively. They came under observation six and seven months pregnant. The Wassermann is "Positive + " in each. They had premature infants, one of which thrives (1½ years); the other only lived four days.

McD, with a "positive" Wassermann, came to the hospital with a non-syphilitic negroess whose treatment was limited to iron. She declined treatment, became alternately hysterical and morose, and died two hours after delivery.

His reported alternating abortions and miscarriages, became Wassermann "positive." She declined treatment, became pregnant, and had an infant which only lived two hours; she then returned for treatment: the infant was not available for examination.

A few preliminary abortions would convert Do into a textbook history, which in this series is conspicuous by its rarity.

It was an unpleasant surprise; only three children out of eight lived for more than a few months; many of the labours were instrumental, all were difficult; with this history pelvic contraction was sought and confirmed; an induction at 36 weeks was followed by a reasonably easy labour, but the 6½ lb. male infant only lived three hours. The Wassermann then examined, was "positive"; the fetus, in spite of an unusually thorough examination, was negative.

Ck suggests syphilitic infection after the first pregnancy; with a "negative" Wassermann, treatment was limited to iron and was followed by a healthy and thriving infant.

TABLE I.

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TABLE I.

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OBSTETRICAL HISTORIES.
W- W(h)-

OBSTETRICAL HISTORY

Co
Da
Wa
Y
F
E
Hg
M^cD
Mg
Hs
Do
R
Ck
Mr
O
B
Ma
Wi

W- W(h)-
W- W(h)-
W+
W-
W+
W+ -○(6)
W+ -○(7)
W+ -○(3)
W- ○
W+ ○
W+ -○(2)
TWINs
W^{pos}
W- ○
Treatment -○
W++
W^{pos}
W++ -○(2)
13 years
W^{pos} -○(3)

*1/2

ABORTION.
STILLBIRTH.
NEONATAL DEATH.
LATER DEATH
SURVIVING.

+ or -
W+ or -
W(h)
-○()
RESULT OF EXAM. OF S.B.
WASSERMANN REACTION
IN HUSBAND
TREATMENT BEGUN.
AT () MONTH.

cases in which a "negative"
By an un-

Mr was one of the first cases in which a "negative" Wassermann accompanied a positive fetus. By an unfortunate lack of coordination the result of the examination of S.B. No. 2 remained with the laboratory worker; the Wassermann result obtained some months later, remained with the clinician. S.B. No. 3 then appeared, and on inquiry it was found that the Wassermann had been negative at six months. To find out when, if ever, the Wassermann became "positive" it was proposed to make weekly examinations; four days after labour the Wassermann was already "positive." A living infant has since been born. The seventh child was still-born; the first six are living; the eighth was examined. As the Wassermann was negative at the V.D. clinic.

O's seventh child was still-born; and the Wassermann test at birth was positive. As the Wassermann test at birth was positive, the child was referred to a V.D. clinic; then B's first infant was macerated, her second is living; then B's second infant was macerated, still-births, and two abortions followed three, not macerated, still-births, and two abortions. As the Wassermann was "positive" she was referred to a V.D. clinic; no subsequent pregnancy has been recorded. Ma had two macerated infants by her first husband; Wassermann "positive ++" at the second month; a healthy infant 13 years later she remarries and becomes pregnant, Wassermann "positive ++" at the second month; a healthy infant was born at term.

W. D. clinic, and was born at term. She had two macerated fetuses, one of which she delivered five years later she remarried and became pregnant again. Wassermann test negative; Wassermann "positive ++" at the second month; a healthy baby.

W. is a neurotic individual with interstitial keratitis, deafness, and suspiciously pegtop teeth, and, when three months pregnant, a "positive" Wassermann. Her first child had died of "meningitis" at four months. Her second, after five months' treatment, was born at 8½ months and lived ten days; the family doctor considered it a congenital syphilitic. The Wassermann two months later was "negative." Treatment was continued, and seven months later, when two months pregnant, the Wassermann was again "positive." She now has a thriving baby.

In the first 57 cases where a diagnosis of latent syphilis was made, the obstetrical history was analysed in detail; 48 abortions and 75 stillbirths occurred—a total of 123 ante- and intra-natal deaths—as compared with 96 live births, of which 33 died, at least 9 of the 33 during the neonatal period. This analysis, with the table already considered is, I think, sufficient to show that the obstetrical history is not a reliable guide in any given case.

Value of Laboratory Evidence.

The laboratory evidence is practically on two counts—the Wassermann reaction and the examination of stillbirths, abortions, and their placentae. The Wassermann reaction is at present the evidence on which we have chiefly to rely.

Between April, 1916, and July, 1920, 348 reactions have been examined for me in connexion with these clinics, 173 were "positive" and 175 "negative." A closer analysis of these is interesting. Up to the end of 1918 65 positive and 88 negative were reported. About this time two changes occurred: firstly, after August, 1918, the Wassermann results, hitherto reported as a straight "positive" or "negative," were reported in four grades—"negative," "slightly positive," "positive +," and "positive ++"; secondly, as the result of a few surprises, the blood was examined in practically all cases where stillbirth was not the obvious result of dystocia, and where abortion had occurred in the last pregnancy or had been repeated. I expected a larger percentage of negatives. From January, 1919, to July, 1920 (inclusive), 63 "positive + or ++" and 87 "negatives" were reported, a singularly close agreement with the earlier figures of 65 and 88. In addition, 45 were "slightly positive," the significance of which is open to discussion. My colleagues on the venereal side, I understand, disregard a "slightly positive" until they can have a repeat test, possibly after a provocative injection. They are in the happy position of being able to "wait and see," the obstetrician sees "full-term" approaching steadily and can only delay treatment at the expense of the fetus.

While the possibility of a "negative" Wassermann during pregnancy is now well known, its frequency is problematical; seven such cases have been found, chiefly during investigations in the department of obstetrics in the University of Liverpool. On the whole, I think it is reasonable to consider that a Wassermann reported "positive" in any degree justifies the institution of antisyphilitic treatment, but that such patients should not be pressed to attend a venereal clinic, as some—one need not guess at a percentage—are not syphilitic, and the consequences of such pressure might be serious. Moreover, difficulties may arise when, as sometimes happens, the blood is examined for the venereal clinic in a different laboratory using another technique; in fairness, it must be stated that the results usually agree, but at least two patients have been referred to venereal clinics with a Wassermann reported "positive +," and the blood on examination in a different laboratory reported "negative." I need not describe the patients' comments. Positive evidence in the fetus—*Spirocheta pallida*, chondro-epiphysitis, and, more or less masked by the post-mortem maceration, changes in other organs, notably the liver, spleen, and lungs—is generally held to be reliable. Negative evidence in the fetus, in my experience, is equally reliable.

In abortions, particularly the early ones, conclusive evidence of syphilis is rarely obtained in the fetus; there does not as yet seem to be unanimity in regard to what is acceptable as reliable evidence in the placenta and membranes. The drawback in regard to this evidence is on the score of quantity rather than quality; in the past it has been rarely available; in the future, owing to the fact that so many fetuses are now being examined, it will be much more widely obtainable, and, in time, will result in the earlier institution of treatment.

Results of Treatment.

Turning now to the treatment, the results of which are shown in Table II. in three series. Firstly, those who had no treatment. The majority of these came

under observation soon after the event; in some the pregnancy terminated before treatment could be instituted; others did not attend after the blood was taken for examination. Secondly, those where treatment was begun during the pregnancy. Table III. shows the period at which treatment was begun. Thirdly, those under treatment when the pregnancy began. The two "negative" Wassermans in "stillbirths, no treatment" accompanied positive fetuses. One patient appears in "living infants" twice. On the first occasion Wassermann "negative," one injection of galy; on the second, Wassermann "slightly positive," no treatment. Exception might be taken to the inclusion of

TABLE II.—Results and Wassermann Reactions.

	Abortion.	Stillbirth.	Neonatal death.	Living infant.
No treatment... 43	15 Pos. 6 "sl. 3 " + 1	17 Pos. 3 "sl. 4 " + 5 Neg. 2	4 Pos. 2 "sl. 2	7 Pos. 1 "sl. 3 " + 1 Neg. 3
Treatment begun... 40 (5) (4g)	2 (1g) Pos. 2 (1g)	4 (1g) Pos. 3 (1g) "sl. 1 (1g)	5 Pos. 3 "sl. 1	29 (4) (2g) Pos. 6 (1) (1g) "sl. 10 (1) " + 9 (2) Neg. 1 (1g)
During pregnancy				" + 3 Neg. 1 (1g)
Under treatment... 11 (1)				11 (g) Pos. 5 (1)
When pregnancy began				" + 3 Neg. 1

TABLE III.—Period of Gestation at which Treatment was Begun.

Abortion.	Stillbirth.	Neonatal death.	Infant living.							
2 (1g)	4 (1) (1g)	5 mo. P. 1 "sl. 1 (1g)	6, 7, 8 P. 3, 3, 5, 7 "sl. 1, 1, 1, 1 " + 1, 6	6, 6 (1g)	1 (1g)	2 (1g)	3 (1g)	4 (1g)	5 (1g)	6 (1g)
P. 1 "sl. 1 (1g)	P. 3 (1g) 5 "sl. 1 (1g)	P. 3, 3, 5, 7 "sl. 1, 1, 1, 1 " + 1, 6	P. 6 (1g)	1 (1g)	2 (1g)	3 (1g)	4 (1g)	5 (1g)	6 (1g)	7 (1g)
			" + 9 (2)	1 (1g)	2 (1g)	3 (1g)	4 (1g)	5 (1g)	6 (1g)	7 (1g)
			" + 3 1 (g)	1 (1g)	2 (1g)	3 (1g)	4 (1g)	5 (1g)	6 (1g)	7 (1g)
				1 (1g)	2 (1g)	3 (1g)	4 (1g)	5 (1g)	6 (1g)	7 (1g)

P. = positive. N. = negative. () = Treated at V.D. clinic.
(g) = Treated by galy.

this case were it not that a definite history of infection, confirmed by a syphilologist, accompanied her. The arsenobenzol derivatives were not used, as the clinics were held in premises loaned for the few hours necessary, and no provision could be made for cases requiring to be kept under observation for some hours in the event of mishap.

Mercury was therefore the remedy adopted. Four cases in the early days had galy (three had one injection each, one had three). As they had to be sent up to hospital for these and sometimes forgot their appointment, or the obstetric assistant, who gave the injections, was on the district, it was not found practicable and was abandoned. For two years I persevered with intramuscular injections of grey oil, but the slight stiffness resulting caused so many complaints—with, I believe, little foundation—that it was abandoned, except in a few cases, in favour of hydrarg. cum creta, gr. i. thrice daily by the mouth. When the venereal clinics were established, many cases were referred to them for treatment; for various reasons these women did not report at the antenatal clinics and only six results are to hand for this table—they are included in the totals but are indicated separately by the figures in the brackets.

It is necessary to avoid confusion between past treatment and proper care when considering the results of treatment in such a disease as syphilis. The first group is a reminder that apparently healthy children may be born

at term without any treatment. There can be no doubt that if treatment had not been instituted in the second group there would have been some live births, the date of the pregnancy at which treatment began ranged from the first to the eighth month; one patient, after six abortions all under 12 weeks, began treatment at 26 weeks and had a surviving baby at 33 weeks. Any division of this group into satisfactory and unsatisfactory treatment is open to abuse. The benefit of the treatment can be stated much more positively in the third group, as these cases had graduated through the first two groups, where they swell the totals on the wrong side of the line.

Conclusions.

The following conclusions are, I think, justified: (1) that the clinical evidence of syphilis is unreliable; (2) that the Wassermann reaction is the test by which, at present, the diagnosis must usually be made; it must be borne in mind that a "negative" or a "slightly positive" reaction may accompany syphilis during pregnancy, and, moreover, that a "positive" may occur in a non-syphilitic individual; (3) that the examination of stillbirths, &c., furnishes reliable but, at present, insufficiently available, evidence; (4) that the institution of mercurial treatment before the pregnancy justifies a favourable foetal prognosis; (5) that the prognosis when treatment is begun during the pregnancy depends on the unknown and already present degree of infection of the foetus.

II.—SPIRILLOLYSIS AND ITS CAUSATION.

BY AMAND ROUTH, M.D. LOND., F.R.C.P. LOND.,
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Dr. Hendry's 94 cases of latent syphilis during pregnancy will help to elucidate the many doubtful problems surrounding the subject, such as the causes of the latency of the infection, the anomalies and irregularities of the Wassermann reaction in both mother and child, and the determination of the best methods of treating both mother and child during and after the pregnancy, so as to cure the mother and prevent congenital syphilis in the child.

Previous to the discovery of the infecting agent of syphilis, and the Wassermann reaction in 1905-06, and of salvarsan and its arsenobenzol substitutes since 1909, obstetricians were familiar with cases of women who had repeated abortions, or stillbirths, or who had borne living but syphilitic children. Unless there had been evidence of primary or secondary symptoms, often entirely absent, in these women before or during the pregnancies, it was often impossible to get any clinical evidence of syphilis. The husband perhaps gave a history of previous syphilis, often six or eight years before marriage, and had remained perfectly well. In the absence of the Wassermann test for the father, mother, and surviving children, and of any knowledge of the presence of the *Spirocheta pallida* in the tissues of a stillborn foetus, a diagnosis of syphilis was hardly ever certain, and treatment by mercury in private practice, such as that adopted by Dr. Hendry in his series of hospital cases, could only be adopted with difficulty owing to the hostility of the father to the view taken of the origin of the stillbirths. As a result, however, of giving mercury to the mother during the pregnancy healthy children were born, but it was rarely possible to continue treatment to mother and child after the birth, and if other healthy children were desired, it was necessary to repeat the treatment of the mother in each successive pregnancy. If this was not agreed to the next child was infected.

It was noticed, however, in untreated cases that the virulence of infection in successive pregnancies appeared to be reduced, the woman's early abortions being succeeded by stillbirths, then living children becoming clinically syphilitic in a few weeks or at puberty, or the mother even getting a healthy child at the end of such a sequence, or even more rarely getting a healthy child during a series of stillbirths.

When the Wassermann reaction was discovered it was fully expected that it would prove to be positive in all women during pregnancy if they had had, or were about to have, a syphilitic child, and that the child,

born alive, but destined to become clinically syphilitic in a few weeks, would, like its mother, prove to be positive. Instead of this, many of these cases are negative, a fact which could not be explained satisfactorily. I had often wondered why such an infection as syphilis, more severe 30 years ago than now, should ever allow a pregnant woman even after the admittedly salutary sequence of several pregnancies, to have a living, and apparently a healthy child. Mr. J. E. R. McDonagh had also noticed this point. It was evident also that there was a modification of the clinical evidences of syphilis in pregnant mothers, even though they were having dead or diseased children, but how could it be explained?

When the *Spirocheta pallida* was discovered in 1905 the puzzle became more difficult, for the mature organism was found to be larger than the spermatozoon's head, and was a large infecting agent relative to the mature ovum. If an ovum was able to be infected at the moment of fertilisation via the paternal semen, or by spirochaetes in the mother's tissues previous or subsequent to fertilisation, it was impossible to understand why such a large infecting organism, capable of unlimited multiplication, did not invariably destroy the delicate early embryo, or to explain how such infected foetuses ever survived their birth—to explain, in fact, how the infection of syphilis tended to become latent during pregnancy.

Spirillolysis.

It is known now that the spiral of the mature spirochaete is able under the action of various substances, or even by a spontaneous spirillolysis, to break up into "granules," generally by a transverse division. Noguchi has observed that in pure cultures under certain conditions enormous numbers of minute granules occur, and that from these granules, after transference to a passive culture medium, spiral forms again sprout out; and in a remarkable article in the *American Journal of Syphilis* in April, 1917, he stated that he had made a series of cultures from recurring "granules" between 1910 and 1917 at the Rockefeller Institute, and was able from some of the strains to infect monkeys and rabbits from the resulting mature organisms.

These and many other facts which I stated in my Harveian address, printed in THE LANCET (Jan. 12th, 1918), make it probable that the spirochaete may become granulated during pregnancy, and it also makes it possible that in some cases infection may be by means of the granules and not by the mature organism. According to Sir Frederick Mott, Neisser, in his experimental investigation on apes, has observed that the tissues of infected animals in which no spirochaetes were demonstrable, could nevertheless be used effectively for inoculation.

Chorionic Ferments.

The further problem is to determine the agents which nature has provided for this spirillolytic action on the S.P. during pregnancy. It is evident it must be some agent which is present very early in pregnancy, in order to prevent almost immediate destruction of the fertilised ovum infected by the *Spirocheta pallida*. Such agency must also continue in action during the pregnancy, or there would be no chance of a child being born alive or of surviving in utero long enough to be treated through its mother. As far back as 1914, in my evidence before the Royal Commission on Venereal Disease, and in my Harveian address in 1918, I ventured to suggest that the chorionic ferments or "syncytial toxins" or their derivatives have this granulating power. These ferments of the chorionic villi are intended for trophoblastic purposes to facilitate the burrowing of the fertilised ovum into the uterine mucosa at the placental site. Any excess of the syncytio-toxins is apparently controlled or neutralised by so-called syncytio-lysins, as a result of the trophoblastic action on the maternal tissues. Failure of such control may be the cause of the various serious anto-

toxemias of pregnancy. If the chorionic ferments are able to exert a destructive or digestive action on the local, probably prepared maternal tissues, it would probably be able to act chemically on the spirochaete, and make it break up into granules. The resulting granules are, I believe, kept

biologically inactive by the ferments and remain "latent," so that they do not "sprout" or multiply in the tissues of the maternal or foetal portions of the placenta, so long as the chorionic ferments are present, and no mature spirochetes are able in an ideal case to pass from mother to child or vice versa, and the infection would during the pregnancy remain latent.

After pregnancy chorionic ferments gradually disappear from both the maternal and foetal tissues (according to Abderhalden they cannot be detected in the maternal blood more than 15 days after parturition), so that the biological activity of the granules may be resumed and the mature organism may become developed.

Irregular Wassermann Reaction: Absence of Spirochetes in Abortion.

Syphilitic infection rendered latent by the chorionic ferments explain several anomalies of the Wassermann reaction. Thus, a pregnant woman, who in due course has either a stillbirth or a living syphilitic child, may sometimes have a negative Wassermann reaction during pregnancy and for some weeks afterwards, for she will only have been infected by the latent granules and not by a mature active spirochete. I believe this negative reaction in the mother can only occur in cases where the ovum has been infected by the father's seminal fluid. After some weeks, when the chorionic ferments become absent, spirochetes may develop and the woman's reaction may become positive owing to enough antibodies being produced in her body to excite a general reaction in her tissues and blood. The child, also, of such a mother would be negative at birth, and if the granules had been completely destroyed by the chorionic ferments, would remain negative; or if the granules had not been destroyed, they would become capable after birth, in the absence of chorionic ferments, of sprouting to form the mature organism, and the reaction would become positive shortly before the clinical evidences appear. It is also possible that a previously syphilitic woman, positive during pregnancy, may have a child born with a negative reaction, if the chorionic ferments or salvarsan, or both, have granulated her spirochetes and thus prevented them from invading the foetal tissues.

Dr. Eardley Holland and others have stated that spirochetes are rarely found in early abortions even when expelled from a pregnant woman who has had syphilitic stillbirths crowded with spirochetes. This is a strange fact. I think the explanation is that spirillolysis has occurred, but has not prevented early foetal death owing to the presence of enormous numbers of granules which, if looked for, might be found, and in suitable media be further developed in vitro.

Infection through the Semen.

The possibility of the ovum being fertilised and infected by the semen, and of the woman being infected through the fetus is not yet proved, but I believe it is true, for minute granules could be readily conveyed by the spermatozoa or in the seminal fluid and kept latent by the chorionic ferments. Sir Frederick Mott pointed out in 1914 that the spirochete may be one form of the syphilitic organism, and that there may be other minute stages analogous to the spores of bacilli, and he suggests that "these 'chromidial granules' may infect the head of the spermatozoon and subsequently multiply and produce the syphilitic lesions." I have assumed that this infection occurs by means of granules resulting from spirillolysis, which are kept latent during pregnancy. If, however, the mature organism were conveyed by the semen, it would be promptly granulated by the ferments, and both the fetus and the mother would only be infected by the granules, and both would have negative reactions immediately after parturition and as long as the inhibition of the chorionic ferments was present.

Intervening Healthy Children: Colles's Law.

The occasional birth of an apparently healthy child amongst a series of dead or infected children can be explained by the chorionic ferments destroying absolutely the granules formed by its spirillolytic action. Colles's law is founded on the fact that women infected

before or during the course of their pregnancy cannot therefore be reinfected. As Sir Frederick Mott has said, "Every syphilitic child has a syphilitic mother." If a woman is already syphilitic before her ovum is infected her reaction will be positive, and she cannot be reinfected by her child. If the woman has a syphilitic husband who has infected the ovum at fertilisation she may become infected through the fetus and become positive if the chorionic ferments fail to protect her from spirochetal infection; or both she and the child may be protected during pregnancy by the chorionic ferments granulating the mature organism, and both may remain negative till after the store of chorionic ferments are exhausted after parturition. In both of these groups the child, if alive after birth, could not infect the mother, but might infect another woman during lactation.

There is still a difficulty in diagnosis in cases where the mother's Wassermann reaction is negative in the absence of reliable evidence of previous congenital syphilitic offspring and of any history or evidence of syphilis in the mother.

Congenital Syphilis.

As Dr. T. H. C. Stevenson, Superintendent of Statistics to the Registrar-General, stated in his evidence before the Royal Commission on Venereal Disease in 1914:—

"The worthlessness of the returns in death certificates as an absolute statement of the number of deaths from venereal diseases scarcely requires demonstration." "Venereal disease to a considerable extent is hidden under other items of the official classification, and infants' deaths returned under 'congenital debility' and other headings (such as 'marasmus,' 'infantile atrophy,' and 'prematurity') are largely due to syphilis."

I doubt if it is realised how frequently congenital syphilis occurs in our industrial cities. I will only quote one set of statistics given by Dr. Helen Campbell, chief medical officer of the infants department of the Bradford health committee, on the effects of congenital syphilis on infantile mortality in Bradford in 1918. Of 2172 infants under observation in 1918, 1606 were registered during the year, and of these 148 died, 107 out of the 141 legitimate children, and 41 out of 165 illegitimate. Of these 148 infantile deaths, 120 were those of syphilitic infants, 81·08 per cent. of the total deaths. Of the 107 legitimate children who died 83 (77·6 per cent.) had congenital syphilis, whilst out of the 41 illegitimate children who died 37 (90·2 per cent.) had syphilis. Dr. Helen Campbell shows that these startling figures "are due to the fact, that congenital syphilitic infants are peculiarly selected for attack by respiratory, gastro-intestinal, and specific (e.g., measles) infections, which kill them in much larger numbers than infants not so affected." The congenital syphilitic child, with a positive Wassermann reaction is apparently rarely cured, and Mr. Charles Gibbs told me in 1917 that he had never known a positive reaction in a congenital syphilitic child become negative after treatment. What then becomes of these children? Do 80 per cent. die during their first year of life as in Dr. Helen Campbell's cases? If so, prevention is essential.

Treatment.

The treatment of syphilis in the pregnant women has two objects in view—to cure the mother and to prevent her child being a congenital syphilitic. Treatment is, in my opinion, only likely to be successful if up to the date of its commencement the multiplication of the mature spirochete has been prevented by the granulating and inhibiting action of the ferments, for if unrestricted infection by the mature organism had been going on in the early cellular ovum or fetus it would have been speedily destroyed, for every growing organ would have been invaded. The surgeons at the Female Lock Hospital and such pioneers elsewhere as Mr. John Adams, Dr. J. H. Sequerra, Dr. Morna Hawlins, and Dr. Hendry, with some variations in their methods of treatment have had extremely good results, showing that children of syphilitic mothers can remain healthy for more than twelve months after their birth. This is a result which few of us have anticipated and should encourage everyone working on the subject.

I hope the discussion will show what advantages salvarsan or its substitutes have over the old or present mercury methods in the treatment of pregnant syphilitic women. Sir Frederick Mott has quoted O'Farrell and A. Balfour to show that injections of salvarsan cause shedding of granules from the S.P., and would thus, I suggest, increase the action of the ferments. If these granules are not destroyed but only rendered latent, clinical syphilis will follow, just as may occur after the action of chorionic ferments has ceased. Whatever the treatment may be, it should be adopted at the earliest possible moment, though cures appear to have followed when injections have been recorded by Dr. Morna Rawlins where successful treatment was begun later months. Four cases have been recorded by Dr. Rawlins where successful treatment was begun at the seventh and eighth month. It would seem that this could only have occurred where spirillolysis, and inhibition of the granules, had occurred up to that date by the action of the chorionic of the granules had partial or complete destruction of the granules had taken place before the injections were begun.

The question also of the continued treatment of the new-born children of these syphilitic mothers, often with negative Wassermann reaction in the mother and child, needs consideration, for the modern treatment varies, some thinking that treatment during lactation may be still effected through the question of gail, or whether it should be treated by injections, or iodide by mercury, as Dr. Rawlins, I believe, prefers, or iodide of potassium, as Dr. C. J. Macalister of Liverpool advises.

It seems obvious that in many cases the father may need treatment also, and that the mother and the child should not be allowed to drift away, but should be seen occasionally for tests and for treatment where necessary. The actual treatment of pregnant women infected by syphilis is now rarely carried out by obstetricians, but the principles of treatment and the frequent latency of syphilitic infection during gestation should be clearly realised by both general practitioners and specialists, for the mother's and child's welfare is in their hands. I believe congenital syphilis could be prevented in all well-organised health centres if every expectant mother came under scientific medical supervision, and if facilities for diagnosis, and for both efficient and sufficiently prolonged treatment of mother and child were available. This is what the Ministry of Health is endeavouring to organise.

III.—RESULTS OF THREE YEARS' TREATMENT OF SYPHILITIC MOTHERS AND BABIES.

By JOHN ADAMS, F.R.C.S. ENG.

JUST two years ago I read a paper before the Obstetrical Section of the Royal Society of Medicine on the Treatment of Ante-natal and Post-natal Syphilis. At that time I was only able to give the results of one year's treatment, and a wish was then expressed that I should report the progress of these cases at some future date. I now lay before you a table giving the full results of all cases treated during the past three years at the Thavies Inn Venereal Centre for pregnant women as far as it has been possible to follow them up. I quote from my former paper.

"I am aware that one year is too short a period in which to bring the treatment of ante-natal and post-natal syphilis to perfection and that the treatment adopted to-day will be improved on to-morrow."

This statement has been fully confirmed during the past two years. I have been able to follow up most of the cases and to show, last November, to the Fellows of the Hunterian Society many of the babies up to 2 years old, all of whom appeared perfectly healthy and showed a negative Wassermann test. On one occasion only a baby showed a doubtful positive Wassermann reaction after once becoming negative.

In each year the percentage of babies born with a negative Wassermann reaction has increased as shown by the statistics which I have given. I attribute this result to the more active treatment the mothers receive before confinement, and the more general use of salvarsan in pregnant syphilitic women than formerly. I look forward with the greatest

confidence in the future to see the wastage of infant life from syphilis almost come to a vanishing point. At present it is doubtful if any disease, even tuberculosis, is so destructive to child life or so disastrous to child health as syphilis. Most of the mothers enter Thavies Inn at about the sixth month of pregnancy, having been sent there on a diagnosis of syphilis, made either on clinical evidence or on the Wassermann test. Some have been treated with mercury and arsenic, and in consequence have no obvious lesions, others have had no treatment whatever. Practically all are in the secondary stage of the disease.

The results of treatment are most encouraging, though, of course, they vary with the period before confinement at which it is begun. In the last two years there has been only one stillbirth and no deaths from syphilis among the cases treated. My experience has been that if the mother's Wassermann test can be brought to negative or doubtful at her confinement the baby will be born negative and show no sign of syphilis. If the mother is positive or strongly positive the baby will probably be positive too, in which case, of course, vigorous antisyphilitic treatment is begun at once. However, in a case at present under my care, in which a definite history was obtainable that infection took place about seven months after conception and no treatment was given before confinement, the baby was born negative, although at the time the mother had generalised syphilis, as shown by a strongly positive Wassermann reaction. Cases of this kind open up questions as to the cause of the baby's immunity.

None of the babies born negative have since become positive, nor developed any signs of syphilis, though many have not had any treatment beyond the drugs they absorb through their mother's milk.

Table Showing Result of Treatment of Women During Pregnancy and of the Newly-born Children at Thavies Inn Venereal Centre for Pregnant Women.

Years Sept. 1st to Aug. 1st.	Mothers admitted with syphilis.	Babies born alive. Wassermann reaction.		Babies dying of syphilis.	Fetus stillborn from syphilis.
		Positive.	Negative.		
1917-1918	28	17	6	3*	5
1918-1919	30	8	21	1 (2 months)	1
1919-1920	37	1	36	None.	None.

* At the ages of 3, 14, 36 days respectively.

Treatment of Babies.

Treatment	Wassermann test of—		
	Mother.	Placenta.	Baby.
—	+	+	+
—	+	—	—
—	+	—	—
—	—	—	—
No treatment	—	—	—

* Does not usually require full course of treatment.

	(A) Intramuscular gail in glucose.		(B) Intramuscular Hg.	
	(A)	(B)	(A)	(B)
1st day	1.5 ccm.	1.5 ccm.	2 ccm.	2 ccm.
8th "	1.5 ccm.	1.5 ccm.	2 ccm.	2 ccm.
15th "	1.5 ccm.	1.5 ccm.	2 ccm.	2 ccm.
Oral.—1 gr. daily Hg c. cret.				
1st Wassermann Test.				
43rd day	2.5 ccm.	2.5 ccm.	3 ccm.	3 ccm.
50th "	2.5 ccm.	2.5 ccm.	3 ccm.	3 ccm.
57th "	2.5 ccm.	2.5 ccm.	3 ccm.	3 ccm.
Oral.—1 gr. daily Hg c. cret.				
2nd Wassermann Test.				

Nearly all babies become negative before or at this period.

Should the Wassermann be definitely positive at any future time begin de novo with treatment.

To summarise I may say that a pregnant woman with syphilis, whether active or latent, if treated for three or four months before her confinement, will probably be delivered of a healthy child at full term.

EXPERIMENTS WITH CEREBRO-SPINAL FLUID.

BY J. E. R. McDONAGH, F.R.C.S. ENG.

SURGEON, LONDON LOCK HOSPITAL.

IF to 2 c.cm. of cerebro-spinal fluid 2 c.cm. of either benzene, toluene, or xylene are added and the mixture shaken for a few minutes and centrifuged, allowed to settle, and then shaken and centrifuged again, the results depicted (Fig. 1), where A is a normal fluid and B a fluid from a case of degenerative encephalitis (G.P.I.), will be obtained. In A the hydrocarbon has remained at the top unaltered, the cerebro-spinal fluid has become slightly opaque and is separated from the hydrocarbon by a narrow hydrocarbon-protein band. In B the contents of the tube are divided into two, an upper broad band of hydrocarbon-protein and a lower opaque cerebro-spinal fluid. In meningeal cases the cerebro-spinal fluid will approach A. If the lesion is wholly meningeal and B if the lesion includes some degeneration of nerve tissue. In pure vascular lesions the cerebro-spinal fluid behaves as normal. What has just been described occurs if the fluid is so treated the day after it has been withdrawn. If the test is carried out immediately after withdrawal a normal fluid will give no hydrocarbon-protein band, and the band will be only half the width in a fluid from a case of degeneration.

FIG. 1.—The Hydrocarbon Test.



A is a normal cerebro-spinal fluid which has been shaken with toluene and then centrifuged. A narrow hydrocarbon-protein band is depicted separating the clear hydrocarbon above from the slightly opalescent cerebro-spinal fluid below.

B is a cerebro-spinal fluid from a case of degenerative encephalitis. The contents of the tube are divided into two: an upper hydrocarbon-protein band and a lower opaque cerebro-spinal fluid.

width in a normal case, but in a degenerative case (tubes, &c.) the contents of the tube will be divided into two, as occurs in G.P.I. When a normal fluid so treated is pipetted off it will give the globulin reaction with ammonium sulphate, a positive or anticomplementary Wassermann reaction and a negative gold-sol test. If the fluid is pathological the globulin reaction will be very marked, the Wassermann reaction will be more positive, anticomplementary, or negative, and the gold-sol curve will be lessened. The complement-fixation test is most likely to become negative in degenerative cases where ordinarily it would have been markedly positive. In some cases the reaction may be masked by a reduction of the hemoglobin—an occurrence met most frequently with normal fluids which have been allowed to stand some days before being tested. Fluids from cases of degenerative encephalitis will ultimately reduce hemoglobin if kept long enough (several weeks at 0°C.).

So far as the various reactions are concerned, similar results to the above are obtained if two drops of formaldehyde (40 per cent.) are added to 1 c.cm. of cerebro-spinal fluid. Shaking cerebro-spinal fluid with kaolin (1 per cent. emulsion) practically makes no

alteration in the case of a normal cerebro-spinal fluid, but in a pathological cerebro-spinal fluid it makes all the reactions more positive with the exception of the gold-sol test, which it diminishes. I have examined a series of fluids so treated with an Abbe's refractometer at 17°C. Very little difference, if any, was found in the readings between normal and pathological fluids. The average reading was 1.3353. Shaking with a hydrocarbon usually increased the reading by 0.0001. Kaolin (1 per cent. emulsion), which has a refractive index of 1.3354 at 17°C., made practically no alteration. Formaldehyde, which has a refractive index of 1.3778 at 17°C., naturally raised the refractive indices of cerebro-spinal fluids, but proportionately less so than it raised that of water and more so than it raised that of serum. Therefore the change in the reading was greater the more normal the fluid, showing that the more protein the fluid contained the more formaldehyde it took up. Next, various cerebro-spinal fluids were examined ultramicroscopically and all three measures were found to increase colloidal activity, the number of particles and sometimes the refractivity of the particles. Treating with formaldehyde had the greatest effect, then shaking with a hydrocarbon, and lastly shaking with kaolin. As these manoeuvres altered the physical state of the protein particles so as to make albumin behave as globulin, &c., and as the actions were apparently surface ones, proved by the fact that the precipitation of colloidal gold was diminished, I then tested the effect of acids and alkalis on normal and pathological fluids, both alone and shaken with a hydrocarbon. Adding 1 drop of ammonia to 1 c.cm. of normal cerebro-spinal fluid makes it go slightly opaque; no ring is given with ammonium sulphate, and on shaking the mixture the opacity goes. The complement-fixation test is rendered anticomplementary, and there is no precipitation of colloidal gold even if the fluid is left standing and tested again in three days' time.

Ultramicroscopic examination shows a slight increase in the number of the particles, and an increase in the size of some of them. Shaking with a hydrocarbon makes no alteration in the results of the reactions, and there is a decrease of the hydrocarbon-protein band. If a fluid from a case of degenerative encephalitis be so treated, a ring is given with ammonium sulphate. The complement-fixation test is rendered anticomplementary, and there is only a slight precipitation of colloidal gold if the fluid is tested three days after it has been treated with the alkali. Shaking with a hydrocarbon reduces the band to that typical of a normal fluid. Adding 1 drop of acetic acid to 1 c.cm. of normal cerebro-spinal fluid causes no opacity, but a ring is obtained with ammonium sulphate.

In the complement-fixation test such a fluid reduces the hemoglobin. If less acid is used the result is anticomplementary, and if still less acid markedly positive. The precipitation of colloidal gold occurs in the first tubes, and tends to approach what is obtained with a cerebro-spinal fluid from a case of degenerative encephalitis. Ultramicroscopic examination shows a slight increase in the number of the particles, an increase in size and a clumping together of some of the particles, which is practically pathognomonic of syphilis. There is a decrease of the hydrocarbon-protein band, and the reactions are unaltered, except that the precipitation of colloidal gold is slightly increased. If a fluid from a case of degenerative encephalitis be so treated a big ring is obtained with ammonium sulphate. The fluid reduces hemoglobin in the complement-fixation test, and the precipitation of colloidal gold is diminished and the hydrocarbon-protein band is reduced to that of a normal fluid. Treating a normal fluid with formaldehyde (4 drops of latter to 2 c.cm. of former) slightly increases the width of the hydrocarbon-protein band, but with fluids from cases of degenerative myelitis and degenerative meningo-encephalitis the band is increased to that normally obtained with a fluid from a case of G.P.I. If fluids first treated with formaldehyde and then shaken with a hydrocarbon be pipetted off, and the other tests be applied thereto the results turn out as follows: A normal fluid will give a ring with ammonium sulphate; it will prove anticomplementary

in the complement-fixation test, but it will cause no precipitation of colloidal gold. A fluid from a case of degeneration will give an enormous ring with ammonium sulphate; it will prove anticomplementary, and its power to precipitate colloidal gold will be decreased. It should be stated here that distilled water and not saline was used in the gold-sol tests, and that the tests must be undertaken the same day as the fluid is diluted, which should be the day after it has been withdrawn. Most discordant results will be obtained if attention to these details be omitted. Arsenic sulphide, antimony sulphide, tin oxide, uranium oxide, selenium and tellurium in the colloidal state all behave as colloidal gold in view of their negative electric charge, while cerium oxide which is positively charged is precipitated by the fluids treated with ammonia. Serum behaves in much the same way with certain variations, which it will be necessary to describe in a separate article, but there are a few points connected with the work done which should be mentioned here. If an electric current is passed through serum most of the protein will precipitate at the positive pole. This negatively charged protein will at first give a positive complement-fixation test and later a negative. The protein at the negative pole very early gives a positive Wassermann reaction, but very quickly acts anticomplementarily, and later reduces hæmoglobin. This positively charged protein behaves in exactly the same way as serum or cerebro-spinal fluid which has been treated with acetic acid. Furthermore, normal serum so treated coagulates at 57° C.; the lipid-globulin is increased and is precipitated by half saturation with ammonium sulphate, and the ultra-microscopic picture is indistinguishable from that given by a syphilitic serum. Occasionally a syphilitic serum will be found partly to coagulate during inactivation. Proportionately, all these changes are more marked with normal serum and fluid than with pathological. This explains why a normal fluid or serum left standing may give positive reactions long before any change is to be noted in the strength of the reactions given by a syphilitic serum, and why syphilitic fluids and sera resist the growth of bacteria therein longer than do normal.

Some Conclusions Drawn.

A study of the diagrammatic clock (Fig. 2) will help to make clear what would be difficult to put in a few lines, but it might be emphasised in writing that these experiments appear to show: (1) that the different kinds of proteins are mainly alterations of a physical state; (2) that the more acidic the protein becomes the less electrolytically charged it becomes, and the more susceptible it becomes to precipitation with the sulphate anion of ammonium sulphate; (3) that the Wassermann reaction is an exhibition of the upset of the normal hydrogen-ion concentration (complement) in vitro, which occurs when the protein particles are robbed of some of their surface electrolytes and negative ions are allowed to predominate over positive ions or vice versa; (4) that the gold-sol test only occurs when there are lipid-globulin particles present which are suitably charged with hydrogen ions.

The last paragraph requires further explanation. A gold-sol curve obtained with a cerebro-spinal fluid diluted with 0.4 per cent. NaCl from a case of degenerative encephalitis will read 555543210 where 5 represents complete precipitation of colloidal gold with a fluid diluted 1 in 10, and 0 no precipitation with a dilution of 1 in 2560. If distilled water is used instead of 0.4 per cent. saline the reading will be 555300000. Treatment with formaldehyde reduces the reading to 025520000, and shaking with a hydrocarbon to 552200000, acetic acid to 455522110, and ammonia to 000000000. A normal fluid diluted with distilled water, treated with formalin or an alkali, or shaken with a hydrocarbon, causes no precipitation of colloidal gold, but treated with an acid the reading may be 555400000. From the above it follows that the diminution of precipitation of colloidal gold is caused by a loss of electrolytes on the surface of the protein particles. If the curves given by a pathological fluid treated with sodium chloride and distilled water and formalin be compared, and these again with the curve given by a normal fluid treated with acetic acid, it will

be noted that in the distilled water and formalin tubes the shades of purple which characterise the sodium chloride are not met with; that in all the tubes where a precipitate is going to form there is at first a fluorescence, and later the precipitate is red to reddish-purple and the fluid above quite white. This is characteristic of complete adsorption and then precipitation. In the tubes containing the acid normal fluid the fluorescence is not marked, the precipitate is purple, and the fluid above the precipitate is not a clear white. This is characteristic of slight adsorption and then precipitation. If various concentrated salts of ammonia are allowed to take the place of cerebro-spinal fluid, the same dilutions being used, the precipitation of colloidal gold will be immediate and various shades of grey, blue, and purple, with usually no fluorescence, will be witnessed. The order of precipitation occurred as follows: Acetate > sulphate > sulphonyl > nitrate > chloride > citrate > bromide > phosphate > tartrate > iodide. If acetic acid diluted 1 in 10 alone be used the reading is 55555433210 and the precipitation is immediate.¹ This is characteristic of precipitation without adsorption. From further experimentation it became clear that the grey, blue, and purple tints were caused first by a reversal of the charge on the gold particles (a positive instead of a negative) by the kation ammonium and the kation hydrogen in the case of the acetic acid, and then precipitation by the various anions according to the Hofmeister's series. From this it follows that the gold-sol test for degeneration depends upon the positive charge on the lipid-protein particles adsorbing and then precipitating; that the purple tints noted when sodium chloride is used are due to reversal of charge by the kation sodium and precipitation by the anion chloride; that the curve given by a normal fluid treated with acetic acid comes midway between the reversal of charge and precipitation by a neutral salt and adsorption; and precipitation by the hydrogen-ion on the surface of the lipid-protein particles. Therefore, although these reactions are electrolytic it is clear that they are influenced by the substratum (protein) to which the electrolytes are attached and that it is the internal phase or the protein colloidal particles and not the external phase of the serum which is the most important—a fact which is well illustrated in my recent work on shock.² This statement is also proved by these experiments. If one drop of glacial acetic acid is added to 1 c.cm. of a fluid from a case of degenerative encephalitis the reading is 4555221100 when 0.2 c.cm. of the mixture is diluted with 1.8 c.cm. of distilled water. If 0.2 c.cm. of the fluid be diluted with 1.8 c.cm. of a 1 in 10 dilution of glacial acetic acid the reading is 0000155532 and with a dilution of acid 1 in 100 the reading is 0015552210. The readings of acetic acid 1 in 10 and 1 in 100 are 5555543321 and 5554321100 respectively. Non-electrolytic lipid-globulin fails to precipitate colloidal gold and so does an unprotected suspension colloid having an opposite electric charge, such as aluminium hydroxide. Therefore not only may we say that the precipitation of colloidal gold is dependent upon the protein particles, but that the action is started by the electrolytes attached thereto.

Production in Vitro of Characteristics of Syphilis.

From this study it seems reasonable to infer that the increase in the number of the protein particles, the increase in size and the clumping together, features so pathognomonic of syphilis, are due to factors at work in vivo which we have been able to partly produce in vitro by robbing the protein particles of some of their electrolytes and increasing the hydrogen charge on their surface. As complement, which is the normal hydrogen-ion concentration, is negatively charged owing to the prevalence of hydroxyl over hydrogen electrolytes, fixation thereof is only to be expected by protein particles in a serum from a syphilitic bearing an increased positive charge. The reason why a negative Wassermann reaction is obtained where a positive was to be expected is, as I showed in my work on the

¹ The solution must be freshly prepared, as the precipitating power decreases as this and other such solutions when diluted (formaldehyde, &c.) are kept. ² Practitioner, 1922, cv. 110.

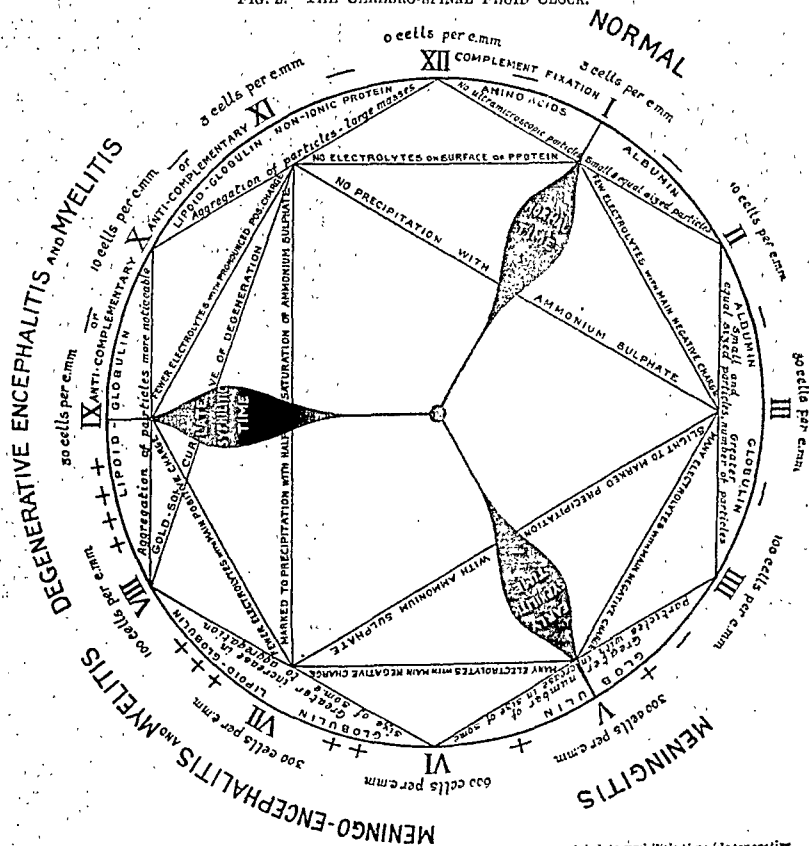
modus operandi of the Wassermann reaction,³ due to several factors: (1) to the protein particles being so richly charged with electrolytes as not to be hurt by the partial de-ionisation caused by inactivation (early syphilis); (2) to the protein particles having insufficient charge (lipoid-globulin, late syphilis); (3) to the splitting off of an unsaturated carboxyl-group which prevents the exhibition of the surface tension reaction (lipoid-globulin, late syphilis). As the protein particles in a syphilitic serum are more fully charged with hydroxyl ions than with hydrogen ions when the disease is young and vice versa when the disease is of long standing; as metals which are positively charged are better able to cause dispersion of the particles which are negatively

charged, thereby increasing the area covered by the charge; as non-metals which are negatively charged are better able to cause dispersion of the particles which are positively charged, proved by ultramicroscopic examinations—additional proof is brought forward as to why arseno-benzene and mercury are indicated more than intramine and colloidal iodine in early syphilis and vice versa in late syphilis.

If dispersion of the protein particles is carried too far the particles become so minute as to cease to be colloidal. Should this happen before the parasites are vanquished, because it is through the action of these particles that the parasites are killed, it can be readily understood that parasites may be present when tests are negative and vice versa, and that in the case of the former a stimulus may be given to the

³ Quart. Journ. of Medicine, 1915, viii., 129.

FIG. 2.—THE CEREBRO-SPINAL FLUID CLOCK.



One o'clock is normal time. Five o'clock is early syphilitic time (meningitis). Nine o'clock is late syphilitic time (degenerative encephalitis and myelitis). Over each hour the number of cells to be found is stated. Between the hours the result of the complement-fixation test is given outside the clock, and the kind of protein to be met with inside the clock. The hexagon formed by 12, 2, 4, 6, 8, and 10 o'clock denotes the number and size of the protein particles as determined by ultra-microscopic examination. The hexagon formed by 11, 1, 3, 5, 7, and 9 o'clock denotes the number of electrolytes on the surface of the protein particles and their electric charge. The triangle formed by 11, 3, and 7 o'clock shows the precipitation of protein by ammonium sulphate. The line between 8 and 11 o'clock denotes the gold-sol curve of degeneration. Supposing a certain cerebro-spinal fluid reveals a cell count of 60 cells per c.mm, the hand will point between 3 and 4 o'clock or between 8 and 9 o'clock. If the former the complement-fixation test will be negative and there will be only a slight precipitation with a saturated solution of ammonium sulphate and the gold-sol test will be negative. Diagnosis: early cerebro-spinal meningitis. If the hand points between 8 and 9 o'clock there will be marked precipitation with ammonium sulphate, the complement-fixation test will be markedly positive and the gold-sol test will be positive. Diagnosis: degenerative encephalitis or degenerative myelitis or both.

parasites to renew their activity. Staining experiments appear to show that the syphilitic parasite has a prevailing positive (hydrogen) charge on its surface, therefore in late syphilis the protein particles correspond in many ways to the parasite they are attacking. The changes the protein particles in the serum undergo also take place in the protein particles which form the protoplasm of lymphocytes and plasma cells. Where cells are concerned, should these changes be pushed too far, the source of supply of these particles is attacked—namely, the nucleoli. When this is the case the particles become so physically altered as to behave as parasites themselves to the cells surrounding them, a condition of auto-parasitism which I believe malignant disease to be. If correct, then a parallel exists between these experiments undertaken with serum and cerebro-spinal fluid *in vitro* and the changes which the protein particles undergo *in vivo* when they are pushed to resist an injury, a poison or a parasite, and in the attempt become malignant. A point worth mentioning in favour of the view that certain of the protein particles in a syphilitic serum are lipid-globulin bearing a positive charge and simulating parasites is the fact that the body does attempt to get rid of them. In early syphilis they are excreted through the glomerular membrane of the kidney, likewise may be the case in late syphilis, thereby accounting for the fact that many of the cases of syphilitic proteinuria are not due to nephritis but to ultra-filtration from the blood. In late syphilis they may also be excreted into the peritoneum, giving rise to the condition called pseudo-chylous ascites. The particles which appear in the cerebro-spinal fluid in cases of degeneration and which are responsible for the gold-sol reaction are also in my opinion excreted particles which possibly get into the cerebro-spinal fluid by ultra-filtration through the choroid plexuses.

Summary.

1. Shaking a cerebro-spinal fluid with toluene, xylene, or benzene the day after it is withdrawn will enable one at once to determine whether the lesion is degenerative or not.
2. This test may be still further confirmed by treating another portion of the fluid with formaldehyde before it is shaken with a hydrocarbon.
3. The various proteins merge into one another; there is no hard-and-fast line between albumin and globulin, and globulin and lipid-globulin. The differences between them are physical rather than chemical.
4. The complement-fixation test is regulated by the ions on the surface of the protein particles—their number and electric charge.
5. The gold-sol test is dependent upon the presence of certain protein particles (lipid-globulin) which have a prevailing positive electric charge on their surface.
6. The gold-sol test carried out with distilled water will readily serve to distinguish a normal fluid from a fluid from a case of degeneration, because the latter only will precipitate the colloidal gold and in the first few tubes only. This may be confirmed with the fluid pipetted off from the hydrocarbon emulsion, because only those fluids from cases of widespread degeneration will precipitate colloidal gold. A diminution in the precipitation of colloidal gold in the first tube when the fluid has been treated with acetic acid indicates degenerative encephalitis (G.P.I.). This may be confirmed by the slight precipitation which occurs in fluids which have been treated with ammonia and which is only allowed to rest before being tested with gold.
7. The met with in cases of degenerative encephalitis in certain lipid-globulin particles simulate parasites in certain ways and those found in the cerebro-spinal fluid in degenerative cases are waste products which have reached the fluid by ultra-filtration through the choroid plexuses.
8. Treating a normal fluid and serum with an acid makes the protein particles therein approach as near as possible to those normally met with in syphilis.

In my opinion these further experiments go some way to support the views I have been expressing for some years on the rationale of immunity and chemotherapy. Finally, I wish to express my deepest gratitude for the valuable assistance given to me by my co-workers, Dr. R. I. Mackenzie Wallis, Mr. J. Patterson, and Mr. J. Ward.

TREATMENT OF DIPHTHERIA CARRIERS WITH DETOXICATED KLEBS-LÖFFLER VACCINE.

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THE problem of the human carrier of bacterial infection is one of ever-increasing importance and one which must be grappled with very seriously in the near future. The term "carrier" denotes a person who harbours virulent pathogenic organisms and is capable of infecting others, though not himself exhibiting any of the clinical signs of the disease. No effort has been made to deal with this great danger to the community by legislation, with one trifling exception.¹ Until carriers can be cured or the occurrence of carriers prevented, little can be done in the way of law-making; the problem is exceedingly difficult and complicated and the carrier much more common than is frequently imagined. In the United States some legislative effort has recently been made to deal with the question. For example, Illinois has prohibited typhoid convalescents from handling milk, food, and so on, until the excreta are certified bacilli-free. A substantial fine (\$200) is imposed for each offence. In this country, however, there is little incentive to search for carriers, and our facilities for dealing with them successfully when found are very limited and unsatisfactory.

C. E. Simon² has emphasised the grave importance of the carrier problem in no uncertain manner. He estimates that in 1915 there were in New York 2679 diphtheria carriers; he hopefully assumes that there must have been roughly 25,000 typhoid carriers. It may be conceded that control of the typhoid carrier is easier than that of the diphtheria carrier who disseminates his organisms constantly at all times and in all places. Lacking absolute curative measures, adequate legislation would involve the rigid control of all convalescents and the quarantine of all detected carriers, whether convalescent, contact, or non-contact. This is obviously impracticable; the only alternative is some workable measure whereby the activities of such carriers may be limited. As a general rule the latter are searched for only after a serious epidemic. Were it not so, the number of known carriers would be very much increased. Cases of delayed resolution after diphtheria where the bacilli persist for periods up to three months, are well known and not uncommon. These frequently clear up spontaneously, and, as has already been shown by J. L. Brownlie,³ can be readily cured by small doses of stock diphtheria vaccine. F. M. Wood⁴ also has claimed that by employing his vaccine-antitoxin treatment of diphtheria the possibility of a "positive throat" and, later on, of a true carrier being established is removed. He thinks that the ultimate result of this treatment when used for cases of diphtheria, for "positive throats" and carriers, and for immunising contacts, would be the complete control of diphtheria epidemics.

The "Positive Throat."

We must differentiate between the "positive throat" and the true diphtheria carrier. In the former the bacilli may disappear spontaneously and within energetic treatment will clear up within a reasonable period. The throat which will not clear up, however, and in which the diphtheria bacilli persist with unabated virulence in spite of the most energetic measures of disinfection, constitutes the true carrier. He may harbour these virulent bacilli for indefinite periods and the organisms do not lose their virulence with the lapse of time. He may, however, develop a clinical diphtheria at any time. (Only the virulent bacilli will kill a guinea-pig.) While one must admit that the results of the long and varied list of disinfectant measures and other so-called curative agents have been exceedingly futile, a very considerable percentage of early "positive throats"

were successfully cleared up in the long run. This type of throat proved to be readily curable by one or two doses of stock diphtheria vaccine. Many of the early "positive throats," which doubtless would have baffled disinfectant measures, also responded to this treatment when tackled early. The treatment of the "chronic throat" by stock vaccines proved infinitely superior to the unreliable local antiseptic throat applications. Up to the present time, however, we are aware of no previous effort which has successfully cured the true, well-established diphtheria carrier.

Immunity.

Immunity results from the activities or products of the living tissue cells. Its nature is complex, as also are the factors which influence it. Leonard Hill⁴ has shown that natural immunity is greatly influenced by metabolism—depression of the basal metabolism lowers resistance, and vice versa. Further, the toxicity of a bacterium depends on the balance between the toxin and its specific antibody. By altering their relationship, the toxicity of a bacterium may be proportionately enhanced or diminished.⁵ The relation of an individual to any pathogenic organism may be one of hypersensitivity, susceptibility, or immunity. On complete recovery from an infection there is an enhanced immunity towards the specific organism for a time. This rise of resisting power can be secured by injections of vaccines, by injections of foreign proteins, or by other artificial means which secure a rise of temperature. We have, therefore, a specific and a non-specific immunity. The latter may be, in certain cases, more effective than the former on account of the fact that many of the specific vaccines so far at our disposal have been rendered ineffective by the presence of a high toxin content. Since, as a rule, endo-toxin does not appear to produce, or in any way aid the production of, specific antibodies, its presence in any vaccine is a definite handicap in that it limits our dosage and in most cases ties us down to a dose-maximum which is inefficient. The dosage of any vaccine is most important. It should always be the largest possible, consistent with the absence of any general shock reaction. With a toxic vaccine the largest possible dose is usually very small and inadequate, and the amount of antibody formation is proportionately minute. In the case of a foreign protein which, though a non-specific entity, successfully produces a specific antibody, the general upset is nil, but the rise in temperature is very marked; such a foreign protein might be a colloidal proteose. This would secure an adequate specific antibody production without the general upset of "protein shock." This it accomplishes by the aid of, or through the resulting production of, a very definite rise of temperature. It would be interesting to know what influence the process of immunisation has upon the basal metabolism.

That a carrier possesses a certain amount of immunity seems reasonable. It is clear, however, that a rise of his immunity curve to a considerable degree is necessary before his antibody armament can deal successfully with the organisms which he harbours. His immunity would seem to be usually sufficient to inhibit the organisms, but quite insufficient to exterminate them; in other words, there is a balance of power. The clinical effect of a detoxicated Klebs-Löffler vaccine in increasing the immunity is well demonstrated in the following cases. (We were a little surprised to find that in these a mixed vaccine was unnecessary.) It has been suggested that detoxicated vaccines prepared after the manner of D. Thomson⁶ have the power of producing an artificial rise of the immunity curve without a corresponding improvement in the clinical picture.⁷ This has never been our experience; the effect of the detoxicated vaccine in causing the degeneration and disappearance of bacilli in carriers of several years' standing is illustrated in the cases we quote. Such a degeneration in morphological appearance of the cultured organism, followed by its complete disappearance, was noted in the "positive throat" cases treated by stock diphtheria vaccine by Brownlie.⁸

A Ziegler⁹ has shown that so far any effort in selecting and treating diphtheria carriers has accomplished little or nothing in securing the cure of the

carriers or the diminution of the incidence of diphtheria. He maintains that every infant below 12 years of age should be actively specifically immunised with toxin-antitoxin. It would seem that prophylactic injections of a detoxicated Klebs-Löffler vaccine in doses of 200 to 8000 million in the case of infants and 8000 to 200,000 million in the case of adults would give a considerable degree of immunity. Such doses may be given without risk of any general or local reaction whatever.

Cases.

Towards the end of 1919 Case 2 was treated at our suggestion on the lines of non-specific immunisation. The general reaction was severe and the dosage difficult to regulate. Virulent bacilli persisted, however, and for several reasons the effort was abandoned. Specific immunisation, when possible, would seem to be much the more powerful, especially when such a non-toxic agent is available, but doubtless there is a large field of usefulness for the non-specific treatment. At the moment other long-established carriers, both of typhoid and diphtheria, are under treatment on the lines of specific immunisation indicated; their progress is decidedly promising. The three cases detailed below show the results attainable.

CASE 1.—X., a married woman, aged 52, had a severe attack of diphtheria in September, 1918, followed by pharyngeal paralysis. She was discharged from hospital after two negative swabs, her stay having lasted four weeks. We were unable to discover whether these swabs were taken from throat and nose, or throat only. In March, 1919, she had a nasal polypus removed. In January, 1920, three children whom she looked after took diphtheria, and a swab showed that she still harboured bacilli. Local treatment failed to affect the bacilli in any way, and on April 9th, 1920, 18 months after her attack of diphtheria, her throat swab showed abundant organisms present. On this date treatment with detoxicated Klebs-Löffler vaccine was commenced. Table I. is an account of the treatment received and progress made:—

TABLE I.

Date in 1920.	Dose of K.L. vaccine (millions)	Method of administration.	Maximum pulse.	Maximum temp.	Pathologist's report.
9/4	200	Subcut.	62	96.3	Positive.
13/4	500	"	63	97.8	"
17/4	600	"	70	95.8	"
21/4	1200	"	70	97.0	Involunt. form.
25/4	2400	"	80	97.0	Negative.
29/4	3600*	"	77.6	97.6	Involunt. form.
3/5	200	Intraven.	62	97.4	Negative.
7/5	400	"	70	96.4	Non-letal to guinea-pig.
11/5	800	"	70	96.6	Negative.
14/5	1600	"	80	97.0	"
19/5	3200	"	78	97.0	"

* Vaccine supply running short.

All subsequent swabs have been negative. During the above vaccine course she had no other treatment whatever. She improved in general health in the most remarkable manner, and the psychological effect of being informed that she was on the road to cure was equally marked.

CASE 2.—Y., a girl, aged 12, was discovered to be a carrier during an outbreak of diphtheria in March, 1917. She was held responsible for three consecutive outbreaks, during which three deaths occurred. From that time onwards she was kept under close observation, and regular throat and nose swabs were taken. These in every case proved positive. During the years 1918 and 1919 she was four times in hospital for considerable periods, but all efforts to destroy the organisms were unavailing. From May to July, 1918, she underwent a course of "606" treatment. She had a characteristic saddle nose, quite devoid of septum, and showing an exceedingly unhealthy nasopharynx. An effort was, therefore, made to improve this condition before proceeding further with the endeavour to eradicate the diphtheria bacilli. The latter, however, persisted. In the latter part of 1919 non-specific immunisation was tried unsuccessfully. On April 29th, 1920, she came under our care, and a swab taken at that time proved positive. The organism which she had harboured over a period of at least three years, she had harboured to a guinea-pig on May 7th, 1920. After a course of vaccine treatment she was entirely free from bacilli, and was returned to her home. She received no other treatment, either general or local, during her vaccine course (Table II.). Two months later a Klebs-Löffler bacillus was again demonstrated in her nose. It proved, however, non-letal to a guinea-pig. During these months this patient had

constantly nursed a baby sister, and also an infant of a next-door neighbour. She had, moreover, slept all the time in a bed with two younger twin sisters. At the date of this positive swab a similar organism was demonstrated in the noses of both these sisters. In no case have any symptoms supervened. This clinical evidence supports the pathological finding that the organisms present are not those which give rise to the disease diphtheria, although similar in

TABLE II.

Date in 1920.	Dose of K.L. vaccine (millions).	Method of administration.	Maximum pulse.	Maximum temp.	Pathologist's report.
29/4	100	Subcut.	62	97.0	Positive.
3/5	200	"	72	97.0	Lethal to guinea-pig.
7/5	400	"	72	96.8	
11/5	800	"	80	96.8	Positive.
14/5	1,600	"	76	97.0	"
19/5	3,200	"	72	97.0	"
4/6	6,400	"	84	96.8	Negative.
8/6	8,000*	"	74	97.0	
12/6	8,000*	"	86	97.0	"
16/6	16,000	"	70	96.6	"
21/6	32,000	"	74	96.8	"

* Vaccine supply running short.

morphology. That is, the organisms may be an essentially different type, or they may be the original strain denuded of all virulence by the treatment. The former theory seems the more likely, but even if the latter be correct, the practical point that emerges is that not a trace of virulence returned to the organism on passage through the throats of the twin sisters of the case. However, the course was given, as shown in Table III.:-

TABLE III.

Date in 1920.	Dose of K.L. vaccine (millions).	Pathologist's report.
15/9	—	Positive, but non-lethal to guinea-pig.
16/9	40,000	Positive.
20/9	80,000	Positive, but non-lethal to guinea-pig.
21/9	160,000	Negative.
29/9	250,000	"

She was sent home on 6/10/20. Meanwhile the positive throats of the contact children already mentioned had cleared up without any treatment and without developing symptoms of any sort.

CASE 3.—Z., a soldier, 26 years of age, was wounded very severely in the face in Belgium on August 2nd, 1915. The nose was completely blown off by a sniper's ricochet bullet. The wounds were cleaned at the base, and two further operations were undertaken four weeks later, while nine weeks later still, at Grayson-road Ear and Throat Hospital, two further operations were performed. At this time the patient had erysipelas, from which he recovered. He was then discharged from the army and admitted to Queen's Hospital, Sidcup, where two plastic operations were performed. These included a graft from a rib cartilage in April,

TABLE IV.

Date in 1920.	Dose of K.L. vaccine (millions).	Pathologist's report.
12/7	4,000	Throat and nose positive.
6/7	12,000	" " "
23/7	24,000	" " "
5/8	48,000	Throat and nose involution forms only.
9/8	95,000	Throat and nose positive.
13/8	129,000	Nose involution forms, throat negative.
17/8	160,000*	Nose positive, throat negative.
21/8	150,000	Nose involution forms, throat negative.
25/8	200,000	Nose positive, throat negative.
30/8	250,000	Nose involution forms, throat negative.
3/9	300,000	Non-lethal to guinea-pig.
7/9	350,000	—

* Supply of vaccine had run out.

1918, which was very successful. He was discharged from hospital and proceeded to his home, where, in August, 1918, three cases of diphtheria occurred. The patient himself had no attack, but Klebs-Löffler bacilli were demonstrated in his nose, and were found to be virulent. Ever since that date these organisms have persisted, and numerous animal inoculations over this period of 23 months showed the organism had lost none of its virulence.

Treatment with detoxicated Klebs-Löffler vaccine was undertaken on July 12th, 1920, and an intensive course proceeded with. Involution forms appeared on August 5th, and

on Sept. 3rd the organism proved non-lethal to a guinea-pig. All the doses of vaccine were given subcutaneously, the patient travelling 20 miles by rail to receive the injections, and returning home the same day. On no occasion did he experience the slightest reaction or trace of discomfort, either generally or locally. The vaccine was supplied to us in strengths of 2000, 20,000, and eventually 100,000 millions per c.cm.

Table IV. is an account of the dosage employed, accompanied by the pathologist's reports.

Suggested Course.

In each of the tables above a check in the increase of dosage will be noticed. The reason for this was that the initial stock of vaccine had run out before the arrival of new supplies. The following course might be suggested as suitable for the treatment of chronic diphtheria carriers. (Table V.)

TABLE V.

Day.	Dose in millions (subcutaneously).	Dose in c.c.	Pathologist's report.
1	5,000	0.05	On swab and effect on guinea-pig.
5	10,000	0.1	—
9	20,000	0.2	On swab.
13	50,000	0.5	—
17	100,000	1.0	On swab.
21	120,000	1.2	—
25	150,000	1.5	On guinea-pig inoculation.
29	200,000	2.0	—
33	250,000	2.5	On swab.
37	300,000	3.0	—
41	320,000	3.2	On guinea-pig inoculation.
45	350,000	3.5	—

Continue the swabbing monthly; should bacilli reappear continue thus.:-

1	50,000	0.5	On guinea-pig inoculation.
5	100,000	1.0	—
9	200,000	2.0	—
13	300,000	3.0	On swab.

By such repeated short courses (when they are required) at, say, three-monthly, and, later, six-monthly intervals, the patient's immunity will be maintained at its maximum.

Concluding Observations.

The length of time during which these cases were carriers of virulent bacilli is important. Since vaccines when given in sufficient doses can have such a marked effect on the virulence of the organism or on the organism itself in such difficult cases they will certainly cure convalescents where resolution is delayed. This has been pointed out by Brownlie. It is generally conceded that the convalescent with an otherwise unhealthy naso-pharynx is most prone to become a chronic carrier. Here we have a point in common in all three cases quoted; in the first a nasal polypus, in the second congenital syphilis, and in the third a gun-shot wound. The first had an attack of diphtheria, while the other two had not. In spite of these ideal conditions for bacterial growth disappearance of the virulent diphtheria bacilli followed detoxicated vaccine treatment. Other organisms with the same morphology, but non-pathogenic, can still flourish on the site, as a mixed vaccine was not used.

Exactly what determines the chronicity of carriers is not yet by any means clear. We are still unaware of the mechanism whereby the convalescent with delayed resolution becomes free. In spite of a multitude of varied efforts, no certain means of clearing up chronic carriers has yet been evolved. The cure of carriers is the most hopeful form of prophylaxis. One would expect the vaccine to confer more or less protection on those exposed to infection. Here we have, then, a method of promising efficiency in dealing with contacts, convalescents, and carriers. Antitoxin protects only from the toxin produced by the living Klebs-Löffler bacilli in the tissues. The vaccine prevents the growth and life of the bacilli. In a case of diphtheria both vaccine and antitoxin should be given. The advantages of dosage allowed by employing detoxicated vaccine must not be overlooked. The dosage employed in Case 3, with good effect and no trace of general or local reaction, is particularly striking.

It is with pleasure that we express our thanks to Dr. J. P. Watt, medical officer of health, Aberdeenshire, for placing these carriers at our disposal, and for a detailed history of Case 2; to Dr. Harry J. Rae for facilities for dealing with Case 3; and to Messrs. Genatossan, Ltd., 12, Chancery-street, W.O., for keeping us supplied with vaccine in constantly varying strengths at a time when dosage was an unknown quantity.

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FURTHER EXPERIMENTS FOR PRESERVATION OF LEMON-JUICE.

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THE preparation of a concentrated form of lemon-juice conserving its antiscorbutic properties has been described in a previous report (April, 1920).¹ The juice of fresh lemons is evaporated down in vacuo at room temperature to a specific gravity of 1.3; it is then a dark yellow, viscid, and very acid fluid, easily made into solid tablets with lactose, &c., and keeping well either in the concentrated juice or tablet form. (In the laboratory preparation of the tablets a small proportion of gum tragacanth was added to give firmness to the final product. In a manufacturing process the great compression available will enable the addition of gum to be dispensed with, and it is essential that it should be as its presence very seriously diminishes the solubility of the tablets.)

The following additional experiments have been carried out.

Keeping Properties of the Concentrated Juice.

(a) A basin of the evaporated juice was exposed for half an hour to the air, then covered and kept in the dark at room temperature. After one, two, and three months this showed neither growth of moulds nor evidence of fermentation.

(b) Test-tubes of the juice were heavily inoculated with aspergillus, penicillium, and mucor; no growth has taken place. It is therefore evident that the concentrated juice may be kept indefinitely without becoming mouldy or fermenting. This is probably due to the intense acidity and viscosity; on dilution of the juice with water it rapidly becomes contaminated with bacterial growth. Commercial malt extract behaves in much the same way.

Animal Experiments.

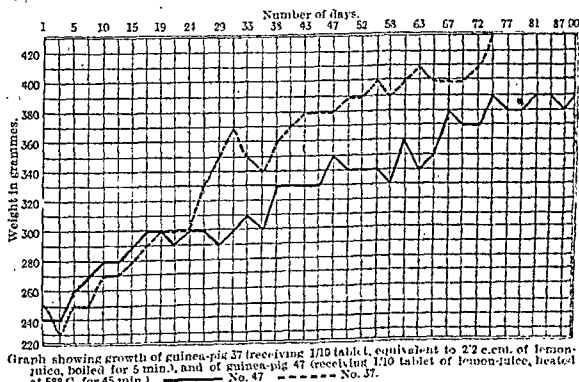
These were carried out to determine whether short periods of exposure to a high temperature, or longer periods at a lower one, could be used without destruction of the antiscorbutic properties for (1) preservation of the original lemon-juice before transit to England; (2) assistance in concentration of the juice in England; (3) preparation of tablets or storage in this concentrated form. Young guinea-pigs of about 300 g. were used. The basal diet was ship's biscuit 40 g., milk sterilised for one and a half hours, 60 c.c.m. liq. calcis, and a feed

of bran and oats one day per week for anti-beriberi vitamins. The cages were large, and the room was warm though well ventilated.

First series.—Fresh filtered lemon-juice boiled for five minutes before concentration. Four animals were given daily 1/5 tablet equal to 4.4 c.c.m. of fresh lemon-juice. One died on twenty-ninth day, all the others grew normally. Two animals were given 1/10 tablet, equal to 2.2 c.c.m. of fresh lemon-juice; both did quite well. One animal was given 10 c.c.m. of boiled de-acidified lemon-juice daily; this also grew quite well. Thus 6 out of 7 treated with lemon-juice which had been boiled for five minutes were completely protected over a period of 90 days.

Second series.—Fresh filtered lemon-juice heated to 58° C. for 45 minutes before concentration. Four animals were given daily 1/5 tablet, equal to 4.4 c.c.m. of fresh lemon-juice; one of these began to lose weight on the fifty-third day and died apparently from inanition on the sixty-ninth day, no signs of definite scurvy being present. Two were given 1/10 tablet, equal to 2.2 c.c.m. of fresh juice. In one progressive loss of weight began on the sixtieth day, on the sixty-fifth day marked paralysis of the hind legs developed, with painful joints; on the seventieth day the subject was put on normal diet and recovered slowly, though the knees remained stiff from contraction, probably fibrosed clots. Thus two of the six animals showed signs of deficiency disease, but in neither were scurvy signs marked. It would appear that though protection was given it was not so complete as in the animals treated with the unheated juice or with the juice boiled for five minutes only, and it follows that boiling for a short period which would sterilise the lemon-juice does not destroy the antiscorbutic factor.

Controls.—Two animals were fed on basal diet only. These began to lose weight on about the twenty-fifth day and both died, one on the thirty-ninth and



Graph showing growth of guinea-pig 37 (receiving 1/10 tablet, equivalent to 2.2 c.c.m. of lemon-juice, boiled for 5 min.), and of guinea-pig 47 (receiving 1/10 tablet of lemon-juice, heated at 58° C. for 45 min.). No. 47 ----- No. 37.

one on the forty-first day. General scurvy signs and enlarged suprarenals were found post mortem. Two animals were given 1 c.c.m. of fresh whole blood daily with the basal diet. One showed signs on the twenty-fifth day and became steadily worse, with faceache position, diarrhoea, ophthalmia, and great emaciation; on the twenty-seventh day it was given cabbage ration and made a complete recovery. The second showed signs on the twenty-fifth day and died on the thirty-eighth. Post mortem there were marked gastro-intestinal changes, with enlarged wrist-joints and suprarenal bodies. The addition of fresh blood to the diet appeared to give rise to intestinal fermentation and did not prevent the onset of signs of deficiency disease in guinea-pigs.

constantly nursed a baby sister, and also an infant of a next-door neighbour. She had, moreover, slept all the time in a bed with two younger twin sisters. At the date of this positive swab a similar organism was demonstrated in the noses of both these sisters. In no case have any symptoms supervened. This clinical evidence supports the pathological finding that the organisms present are not those which give rise to the disease diphtheria, although similar in

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14/5	1,600	"	76	97.0	"
19/5	3,200	"	72	97.0	"
4/6	6,400	"	84	96.8	"
8/6	8,000*	"	74	97.0	Negative.
12/6	8,000*	"	86	97.0	"
16/6	16,000	"	70	96.6	"
21/6	32,000	"	74	96.8	"

* Vaccine supply running short.

morphology. That is, the organisms may be an essentially different type, or they may be the original strain denuded of all virulence by the treatment. The former theory seems the more likely, but even if the latter be correct, the practical point that emerges is that not a trace of virulence returned to the organism on passage through the throats of the twin sisters of the case. However, the course was given, as shown in Table III. —

TABLE III.

Date in 1920.	Dose of K.L. vaccine (millions).	Pathologist's report.
15/9	—	Positive, but non-lethal to guinea-pig.
16/9	40,000	Positive.
20/9	80,000	Positive, but non-lethal to guinea-pig.
21/9	160,000	Negative.
29/9	250,000	"

She was sent home on 6/10/20. Meanwhile the positive throats of the contact children already mentioned had cleared up without any treatment and without developing symptoms of any sort.

CASE 3.—Z., a soldier, 26 years of age, was wounded very severely in the face in Belgium on August 2nd, 1915. The nose was completely blown off by a sniper's ricochet bullet. The wounds were cleaned at the base, and two further operations were undertaken four weeks later, while nine weeks later still, at Grayson-road Ear and Throat Hospital, two further operations were performed. At this time the patient had erysipelas, from which he recovered. He was then discharged from the army and admitted to Queen's Hospital, Sidcup, where two plastic operations were performed. These included a graft from a rib cartilage in April,

TABLE IV.

Date in 1920.	Dose of K.L. vaccine (millions).	Pathologist's report.
12/7	4,000	Throat and nose positive.
6/7	12,000	" " "
20/7	24,000	" " "
5/8	48,000	Throat and nose involution forms only.
9/8	96,000	Throat and nose positive.
13/8	120,000	Nose involution forms, throat negative.
17/8	100,000	Nose positive, throat negative.
21/8	150,000	Nose involution forms, throat negative.
25/8	200,000	Nose positive, throat negative.
30/8	250,000	Nose involution forms, throat negative.
3/9	300,000	Non-lethal to guinea-pig.
7/9	350,000	"

* Supply of vaccine had run out.

1918, which was very successful. He was discharged from hospital and proceeded to his home, where, in August, 1918, three cases of diphtheria occurred. The patient himself had no attack, but Klebs-Löffler bacilli were demonstrated in his nose, and were found to be virulent. Ever since that date these organisms have persisted, and numerous animal inoculations over this period of 23 months showed the organism had lost none of its virulence.

Treatment with detoxicated Klebs-Löffler vaccine was undertaken on July 12th, 1920, and an intensive course proceeded with. Involution forms appeared on August 5th, and

on Sept. 3rd the organism proved non-lethal to a guinea-pig. All the doses of vaccine were given subcutaneously, the patient travelling 20 miles by rail to receive the injections, and returning home the same day. On no occasion did he experience the slightest reaction or trace of discomfort, either generally or locally. The vaccine was supplied to us in strengths of 2000, 20,000, and eventually 100,000 millions per c.cm.

Table IV. is an account of the dosage employed, accompanied by the pathologist's reports.

Suggested Course.

In each of the tables above a check in the increase of dosage will be noticed. The reason for this was that the initial stock of vaccine had run out before the arrival of new supplies. The following course might be suggested as suitable for the treatment of chronic diphtheria carriers. (Table V.)

TABLE V.

Day.	Dose in millions (subcutaneously).	Dose in c.c.	Pathologist's report.
1	5,000	0.05	On swab and effect on guinea-pig
5	10,000	0.1	—
9	20,000	0.2	On swab.
13	50,000	0.5	—
17	100,000	1.0	On swab.
21	120,000	1.2	—
25	150,000	1.5	On guinea-pig inoculation.
29	200,000	2.0	—
33	250,000	2.5	On swab.
37	300,000	3.0	—
41	320,000	3.2	On guinea-pig inoculation.
45	350,000	3.5	—

Continue the swabbing monthly; should be reappearance continue thus:—

Day.	Dose in millions (subcutaneously).	Dose in c.c.	Pathologist's report.
1	50,000	0.5	On guinea-pig inoculation.
5	100,000	1.0	—
9	200,000	2.0	On swab.
13	300,000	3.0	—

By such repeated short courses (when they are required) at, say, three-monthly, and, later, six-monthly intervals, the patient's immunity will be maintained at its maximum.

Concluding Observations.

The length of time during which these cases were carriers of virulent bacilli is important. Since vaccines when given in sufficient doses can have such a marked effect on the virulence of the organism or on the organism itself in such difficult cases they will certainly cure convalescents where resolution is delayed. This has been pointed out by Brownlie. It is generally conceded that the convalescent with an otherwise unhealthy naso-pharynx is most prone to become a chronic carrier. Here we have a point in common in all three cases quoted; in the first, a nasal polypus, in the second congenital syphilis, and in the third a gun-shot wound. The first had an attack of diphtheria, while the other two had not. In spite of these ideal conditions for bacterial growth disappearance of the virulent diphtheria bacilli followed detoxicated vaccine treatment. Other organisms with the same morphology, but non-pathogenic, can still flourish on the site, as a mixed vaccine was not used.

Exactly what determines the chronicity of carriers is not yet by any means clear. We are still unaware of the mechanism whereby the convalescent with delayed resolution becomes free. In spite of a multitude of varied efforts, no certain means of clearing up chronic carriers has yet been evolved. The cure of carriers is the most hopeful form of prophylaxis. One would expect the vaccine to confer more or less protection on those exposed to infection. Here we have, then, a method of promising efficiency in dealing with contacts, convalescents, and carriers. Antitoxin protects only from the toxin produced by the living Klebs-Löffler bacilli in the tissues. The vaccine prevents the growth and life of the bacilli. In a case of diphtheria both vaccine and antitoxin should be given. The advantages of dosage allowed by employing detoxicated vaccine must not be overlooked. The dosage employed in Case 3 with good effect and no trace of general or local reaction is particularly striking.

It is with pleasure that we express our thanks to Dr. J. P. Watt, medical officer of health, Aberdeenshire, for placing these carriers at our disposal, and for a detailed history of Case 2; to Dr. Harry J. Rao for facilities for dealing with Case 3; and to Messrs. Genatosan, Ltd., 12, Chenies-street, W.C., for keeping us supplied with vaccine in constantly varying strengths at a time when dosage was an unknown quantity.

References.—1. Arts. XIII. and XV. P. H. (Pneumonia, Malaria, Dysentery, &c.) Regs. 1919. 2. Simon, O. E.: Human Infection Carriers. Lea and Febiger, New York, 1919. 3. Brownlie, J. L.: THE LANCET, 1920, I, p. 702. 4. Wood, F. M.: New York Med. Jour., Jan. 10th, 1920. 5. Hill, L.: Science of Ventilation and Open Air Treatment, 1919 (Med. Res. Com.), chap. iv, part 1. 6. Teale, F. H.: THE LANCET, 1920, II, p. 279. 7. Fraser, A. R., and Duncan, A. G. H.: THE LANCET, 1920, I, p. 248. 8. Thomson, D.: THE LANCET, June 28th, 1919. 9. Dixon, H. D. P., and Freestley, A. H.: THE LANCET, 1919, II, p. 964. 10. Ziegler, A.: Amer. Jour. Dis. Child., 1918, xvi., p. 83.

FURTHER EXPERIMENTS FOR PRESERVATION OF LEMON-JUICE.

By P. W. BASSETT-SMITH, C.B., C.M.G., F.R.C.P.,
REAR ADMIRAL, ROYAL NAVY.

THE preparation of a concentrated form of lemon-juice conserving its antiscorbutic properties has been described in a previous report (April, 1920).¹ The juice of fresh lemons is evaporated down in vacuo at room temperature to a specific gravity of 1.3; it is, then a dark yellow, viscid, and very acid fluid, easily made into solid tablets with lactose, &c., and keeping well either in the concentrated juice or tablet form. (In the laboratory preparation of the tablets a small proportion of gum tragacanth was added to give firmness to the final product. In a manufacturing process the great compression available will enable the addition of gum to be dispensed with, and it is essential that it should be as its presence very seriously diminishes the solubility of the tablets.)

The following additional experiments have been carried out.

Keeping Properties of the Concentrated Juice.

(a) A basin of the evaporated juice was exposed for half an hour to the air, then covered and kept in the dark at room temperature. After one, two, and three months this showed neither growth of moulds nor evidence of fermentation. (b) Test-tubes of the juice were heavily inoculated with *aspergillus*, *penicillium*, and *mucor*; no growth has taken place. It is therefore evident that the concentrated juice may be kept indefinitely without becoming mouldy or fermenting. This is probably due to the intense acidity and viscosity; on dilution of the juice with water it rapidly becomes contaminated with bacterial growth. Commercial malt extract behaves in much the same way.

Animal Experiments.

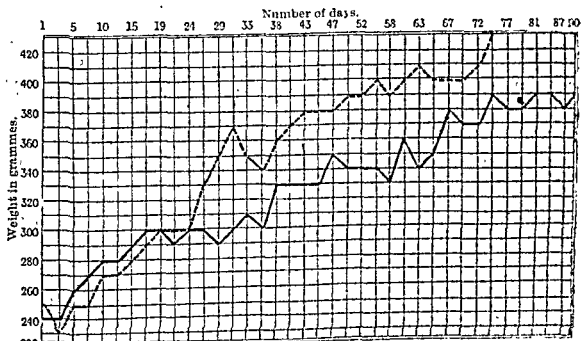
These were carried out to determine whether short periods of exposure to a high temperature, or longer periods at a lower one, could be used without destruction of the antiscorbutic properties for (1) preservation of the original lemon-juice before transit to England; (2) assistance in concentration of the juice in England for preparation of tablets or storage in this concentrated form. Young guinea-pigs of about 300 g. were used. The basal diet was ship's biscuit 40 g., milk sterilised for one and a half hours, 60 c.cm. liq. calceis, and a feed

of bran and oats one day per week for anti-beriberi vitamins. The cages were large, and the room was warm though well ventilated.

First series.—Fresh filtered lemon-juice boiled for five minutes before concentration. Four animals were given daily 1/5 tablet equal to 4.4 c.cm. of fresh lemon-juice. One died on twenty-ninth day, all the others grew normally. Two animals were given 1/10 tablet, equal to 2.2 c.cm. of fresh lemon-juice; both did quite well. One animal was given 10 c.cm. of boiled de-acidified lemon-juice daily; this also grew quite well. Thus 6 out of 7 treated with lemon-juice which had been boiled for five minutes were completely protected over a period of 90 days.

Second series.—Fresh filtered lemon-juice heated to 58° C. for 45 minutes before concentration. Four animals were given daily 1/5 tablet, equal to 4.4 c.cm. of fresh lemon-juice; one of these began to lose weight on the fifty-third day and died apparently from inanition on the sixty-ninth day, no signs of definite scurvy being present. Two were given 1/10th tablet, equal to 2.2 c.cm. of fresh juice. In one progressive loss of weight began on the sixtieth day, on the sixty-fifth day marked paralysis of the hind legs developed, with painful joints; on the seventieth day the subject was put on normal diet and recovered slowly, though the knees remained stiff from contraction, probably fibrosed clots. Thus two of the six animals showed signs of deficiency disease, but in neither were scurvy signs marked. It would appear that though protection was given it was not so complete as in the animals treated with the unheated juice or with the juice boiled for five minutes only, and it follows that boiling for a short period which would sterilise the lemon-juice does not destroy the antiscorbutic factor.

Controls.—Two animals were fed on basal diet only. These began to lose weight on about the twenty-fifth day and both died, one on the thirty-ninth and



Graph showing growth of guinea-pig 37 (receiving 1/10 tablet, equivalent to 2.2 c.cm. of lemon-juice, boiled for 5 min.), and of guinea-pig 47 (receiving 1/10 tablet of lemon-juice, heated to 58° C. for 45 min.). No. 47. ——— No. 37.

one on the forty-first day. General scurvy signs and enlarged suprarenals were found post mortem. Two animals were given 1 c.cm. of fresh whole blood daily with the basal diet. One showed signs on the twenty-fifth day and became steadily worse, with faceache position, diarrhoea, ophthalmia, and great emaciation; on the twenty-seventh day it was given cabbage ration and made a complete recovery. The second showed signs on the twenty-fifth day and died on the thirty-eighth. Post mortem there were marked gastro-intestinal changes, with enlarged wrist-joints and suprarenal bodies. The addition of fresh blood to the diet appeared to give rise to intestinal fermentation and did not prevent the onset of signs of deficiency disease in guinea-pigs.

¹ See THE LANCET, May 22nd, 1920 (p. 1102).

constantly nursed a baby sister, and also an infant of a next-door neighbour. She had, moreover, slept all the time in a bed with two younger twin sisters. At the date of this positive swab a similar organism was demonstrated in the noses of both these sisters. In no case have any symptoms supervened. This clinical evidence supports the pathological finding that the organisms present are not those which give rise to the disease diphtheria, although similar in

TABLE II.

Date in 1920.	Dose of K.L. vaccine (millions).	Method of administration.	Maximum pulse.	Maximum temp.	Pathologist's report.
29/4	100	Subcut.	62	97.0	Positive.
3/5	200	"	72	97.0	Lethal to guinea-pig.
7/5	400	"	72	96.8	"
11/5	800	"	80	96.8	Positive.
14/5	1,600	"	76	97.0	"
19/5	3,200	"	72	97.0	"
4/6	6,400	"	84	95.8	"
8/6	8,000*	"	74	97.0	Negative.
12/6	8,000*	"	86	97.0	"
16/6	16,000	"	70	96.6	"
21/6	32,000	"	74	95.8	"

* Vaccine supply running short.

morphology. That is, the organisms may be an essentially different type, or they may be the original strain denuded of all virulence by the treatment. The former theory seems the more likely, but even if the latter be correct, the practical point that emerges is that not a trace of virulence returned to the organism on passage through the throats of the twin sisters of the case. However, the course was given, as shown in Table III.:-

TABLE III.

Date in 1920.	Dose of K.L. vaccine (millions).	Pathologist's report.
15/9	—	Positive, but non-lethal to guinea-pig.
16/9	40,000	Positive.
20/9	80,000	Positive, but non-lethal to guinea-pig.
24/9	160,000	Negative.
29/9	250,000	"

She was sent home on 6/10/20. Meanwhile the positive throats of the contact children already mentioned had cleared up without any treatment and without developing symptoms of any sort.

CASE 3.—Z., a soldier, 26 years of age, was wounded very severely in the face in Belgium on August 2nd, 1915. The nose was completely blown off by a sniper's ricochet bullet. The wounds were cleaned at the base, and two further operations were undertaken four weeks later, while nine weeks later still, at Grayson-road Ear and Throat Hospital, two further operations were performed. At this time the patient had erysipelas, from which he recovered. He was then discharged from the army and admitted to Queen's Hospital, Sidcup, where two plastic operations were performed. These included a graft from a rib cartilage in April,

TABLE IV.

Date in 1920.	Dose of K.L. vaccine (millions).	Pathologist's report.
12/7	4,000	Throat and nose positive.
6/7	12,000	" " "
20/7	24,000	" " "
5/8	48,000	Throat and nose involution forms only.
9/8	96,000	Throat and nose positive.
13/8	120,000	Nose involution forms, throat negative.
17/8	160,000*	Nose positive, throat negative.
21/8	150,000	Nose involution forms, throat negative.
25/8	200,000	Nose positive, throat negative.
30/8	250,000	Nose involution forms, throat negative.
3/9	300,000	Non-lethal to guinea-pig.
7/9	350,000	"

* Supply of vaccine had run out.

1915, which was very successful. He was discharged from hospital and proceeded to his home, where, in August, 1918, three cases of diphtheria occurred. The patient himself had no attack, but Klebs-Löffler bacilli were demonstrated in his nose, and were found to be virulent. Ever since that date these organisms have persisted, and numerous animal inoculations over this period of 25 months showed the organism had lost none of its virulence.

Treatment with detoxicated Klebs-Löffler vaccine was undertaken on July 12th, 1920, and an intensive course proceeded with. Involution forms appeared on August 5th, and

on Sept. 3rd the organism proved non-lethal to a guinea-pig. All the doses of vaccine were given subcutaneously, the patient travelling 20 miles by rail to receive the injections, and returning home the same day. On no occasion did he experience the slightest reaction or trace of discomfort, either generally or locally. The vaccine was supplied to us in strengths of 2000, 20,000, and eventually 100,000 millions per c.c.m.

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In each of the tables above a check in the increase of dosage will be noticed. The reason for this was that the initial stock of vaccine had run out before the arrival of new supplies. The following course might be suggested as suitable for the treatment of chronic diphtheria carriers. (Table V.)

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Day.	Dose in millions (subcutaneously).	Dose in c.c.	Pathologist's report.
1	5,000	0.05	On swab and effect on guinea-pig.
5	10,000	0.1	—
9	20,000	0.2	—
13	50,000	0.5	On swab.
17	100,000	1.0	—
21	120,000	1.5	On swab.
25	150,000	2.0	—
29	200,000	2.5	On guinea-pig inoculation.
33	250,000	3.0	—
37	300,000	3.0	On swab.
41	320,000	3.2	—
45	350,000	3.5	On guinea-pig inoculation.

Continue the swabbing monthly; should bacilli reappear continue thus:—

Day.	Dose in millions (subcutaneously).	Dose in c.c.	Pathologist's report.
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By such repeated short courses (when they are required) at, say, three-monthly, and, later, six-monthly intervals, the patient's immunity will be maintained at its maximum.

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The following additional experiments have been carried out.

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(a) A basin of the evaporated juice was exposed for half an hour to the air, then covered and kept in the dark at room temperature. After one, two, and three months this showed neither growth of moulds nor evidence of fermentation.

(b) Test-tubes of the juice were heavily inoculated with *aspergillus*, *penicillium*, and *mucor*; no growth has taken place. It is therefore evident that the concentrated juice may be kept indefinitely without becoming mouldy or fermenting. This is probably due to the intense acidity and viscosity; on dilution of the juice with water it rapidly becomes contaminated with bacterial growth. Commercial malt extract behaves in much the same way.

Animal Experiments.

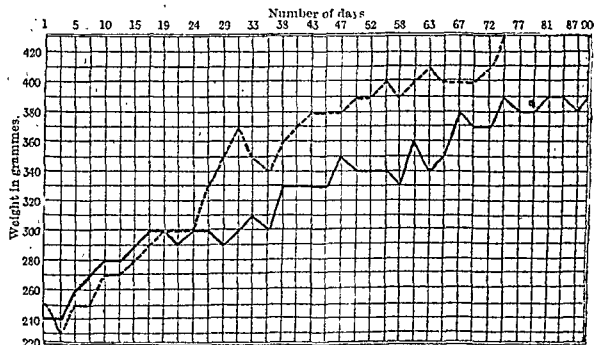
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of bran and oats one day per week for anti-beriberi vitamins. The cages were large, and the room was warm though well ventilated.

First series.—Fresh filtered lemon-juice boiled for five minutes before concentration. Four animals were given daily 1/5 tablet equal to 4.4 c.c.m. of fresh lemon-juice. One died on twenty-ninth day, all the others grew normally. Two animals were given 1/10 tablet, equal to 2.2 c.c.m. of fresh lemon-juice; both did quite well. One animal was given 10 c.c.m. of boiled de-acidified lemon-juice daily; this also grew quite well. Thus 6 out of 7 treated with lemon-juice which had been boiled for five minutes were completely protected over a period of 90 days.

Second series.—Fresh filtered lemon-juice heated to 58° C. for 45 minutes before concentration. Four animals were given daily 1/5 tablet, equal to 4.4 c.c.m. of fresh lemon-juice; one of these began to lose weight on the fifty-third day and died apparently from inanition on the sixty-ninth day, no signs of definite scurvy being present. Two were given 1/10th tablet, equal to 2.2 c.c.m. of fresh juice. In one progressive loss of weight began on the sixtieth day, on the sixty-fifth day marked paralysis of the hind legs developed, with painful joints; on the seventieth day the subject was put on normal diet and recovered slowly, though the knees remained stiff from contraction, probably fibrosed clots. Thus two of the six animals showed signs of deficiency disease, but in neither were scurvy signs marked. It would appear that though protection was given it was not so complete as in the animals treated with the unheated juice or with the juice boiled for five minutes only, and it follows that boiling for a short period which would sterilise the lemon-juice does not destroy the antiscorbutic factor.

Controls.—Two animals were fed on basal diet only. These began to lose weight on about the twenty-fifth day and both died, one on the thirty-ninth and



Graph showing growth of guinea-pig 37 (receiving 1/10 tablet, equivalent to 2.2 c.c.m. of lemon-juice, boiled for 5 min.), and of guinea-pig 47 (receiving 1/10 tablet of lemon-juice, heated at 58° C. for 45 min.). — No. 47. - - - - - No. 37.

one on the forty-first day. General scurvy signs and enlarged suprarenals were found post mortem. Two animals were given 1 c.c.m. of fresh whole blood daily with the basal diet. One showed signs on the twenty-fifth day and became steadily worse, with faecache position, diarrhoea, ophthalmia, and great emaciation; on the twenty-seventh day it was given cabbage ration and made a complete recovery. The second showed signs on the twenty-fifth day and died on the thirty-eighth. Post mortem there were marked gastro-intestinal changes, with enlarged wrist-joints and suprarenal bodies. The addition of fresh blood to the diet appeared to give rise to intestinal fermentation and did not prevent the onset of signs of deficiency disease in guinea-pigs.

TABLE OF RESULTS OF EXPERIMENTS ON GUINEA-PIGS TO DETERMINE THE ANTISCORBUTIC PROPERTIES OF LEMON-JUICE EXPOSED TO VARYING DEGREES OF HEAT.

No.	Weight in grammes	Diet.	Course.	Result.	Gain or loss of weight.	Scurvy signs.	Duration (days).
32	250	Lemon-juice boiled 5 minutes. 1/5 tablet = 4.4 c.cm.	Paralysis of hind legs and 26-day signs.	D. 29th day.	Nil.	Hæmorrhages, subcutaneous and intestinal. Sp. large and hæmorrhagic.	29
33	340	" "	Steady growth.	R.	Gain 100.	Nil.	80
31	270	" "	" "	R.	Gain 160.	Nil.	91
35	300	" "	" "	R.	Gain 120.	Nil.	91
36	340	Lemon-juice boiled 5 min. 1/10 tablet = 2.2 c.cm.	" "	R.	Gain 110.	Nil.	91
37	350	" "	" "	R.	Gain 180.	Nil.	91
41	300	Deacidified lemon-juice boiled 5 min. 10 c.cm.	" "	R.	Gain 130.	Nil.	90
42	340	Lemon-juice heated at 58° C. for 45 min. 1/5 tablet.	" "	R.	Gain 170.	Nil.	93
43	270	" "	" "	R.	Gain 160.	Nil.	93
44	340	" "	Practically no growth for 6 weeks, then rapid fall.	D.	Loss 90.	None definite beyond emaciation.	67
45	240	" "	Steady growth.	R.	Gain 160.	Nil.	93
46	290	1/10 tablet of above.	Steady growth for 9 weeks, then rapid fall; normal diet on 67th day.	Final recovery.	Gain 20.	Stiff joints and paralysis of hindquarters.	93
47	240	" "	Steady rise.	R.	Gain 160.	Nil.	93
40	280	Control; basal diet only.	Began to lose weight 22nd day; rapid fall.	D.	Loss 120.	Blood, bones, and joints.	39
48	260	" "	Began to lose weight 24th day; rapid fall.	D.	Loss 50.	Hæmorrhage; fragile bones; large joints.	41
39	300	Basal diet, plus 1 c.cm. fresh blood.	Steady loss of weight from 20th day.	D.	Loss 80.	" "	39
38	250	" "	Scurvy signs on 27th day; put on cabbage 36th day; rapid recovery.	Final recovery.	Gain 100.	Face-ache; painful joints; diarrhoea; ophthalmia.	64

D., died. R., recovery. Sp., suprarenal.

Conclusions.

(1) The concentrated lemon-juice will keep well in concentrated juice or tablet form.

(2) Boiling the lemon-juice for five minutes does not appreciably diminish the antiscorbutic property.

(3) Heating for three-quarters of an hour at 58° C. diminishes it to a more marked degree. The equivalent of 2.2 c.cm. in one animal gave complete protection; 4.4 c.cm. completely protected three out of four.

Note.—In an annotation on this paper (THE LANCET, Oct. 23rd, p. 863) the question was raised of the utilisation, for its antiscorbutic content, of the magma from the manufacture of citric acid by precipitation with chalk. In my previous paper (May 22nd, 1920) the deacidified juice mentioned in para. 2, p. 1104 (and in first series above), and which added to an otherwise scorbutic diet prevented scurvy in guinea-pigs and enabled normal growth to proceed, was prepared in such a manner. To the fresh juice precipitated calcium carbonate was added in excess, the mixture brought just to the boil and filtered; the filtrate gave the deacidified juice used.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A SIMPLE METHOD OF TONSILLECTOMY.

BY SIR JOHN O'CONOR, K.B.E., M.A., M.D. T.C.D.,
BRITISH HOSPITAL, BUENOS AIRES.

I WOULD like to invite attention to a simple and effective method for removing tonsils and adenoids.

Patient is given by the open method and the patient is placed in a supine position on the operating table, with the head semi-extended over a medium-sized circular sand cushion, held firmly fixed in a vertical position between the hands of an assistant standing behind the head of the table. Another assistant, standing on the right side, introduces a Doyen's mouth-gag and maintains it in situ. The operator, standing on the left side, passes Mackenzie's tonsillotome of suitable size towards back of pharynx, at the same time gliding his left index finger downwards alongside of instrument to guide it into position so that it may encircle the left tonsil—this is combined with a gentle inward push of the handle which fixes the ring against the lateral pharyngeal wall below the tonsil removed. The guillotine is then pressed home and the tonsil removed. The assistant at once removes the gag, he and the operator change sides, and the same procedure is repeated on the right side, after which the operator passes his right index finger behind the palate in quest of adenoids, which, if present, are at once removed by a curette. The gag is then removed, and the patient's head and shoulders are dropped, momentarily, over side of table to facilitate collection of blood.

The essentials of this method are rigid maintenance of the head in the vertical position, and the intelligent assistance of the left index finger.

A CASE OF
TRANSPPOSITION OF CÆCUM, APPENDIX,
AND COLON,

WITH ABSENCE OF THE SIGMOID FLEXURE.

BY VINCENT J. GLOVER, M.D. LIVERP., M.B., CH.B. VICT.

THE operation which is here described was recently performed upon a patient who first consulted me some six months previously.

At that time he suffered from pain which began on the right side, shifting the lower angle of the scapula, and radiating round the flank towards the umbilicus; shortly it became intense and localised midway between the umbilicus and McBurney's spot. Vomiting of green bilious fluid occurred; I found no temperature and no other symptom upon examination of the abdomen beyond marked tenderness on palpation over the region of McBurney's spot and along a line extending from it half-way to the umbilicus. After a few days' rest and appropriate treatment the patient resumed his occupation, taking a light diet. I formed the opinion that he had had an appendicular attack, although I was not quite satisfied, suspecting the presence of gall-stones. A similar attack supervened after three weeks' interval, and upon the occurrence of a third I consulted with Dr. A. Gordon Gullab, who inclined to the view that there was some gall-bladder trouble, and probably some appendicular disease. The patient was dieted and treated, and recovered rapidly, but another attack followed, and I decided to operate.

The abdomen was opened by the rectal-sheath method. There were extensive adhesions of the small intestine. The condition evidenced several attacks of localised peritonitis. During search for the appendix a loop of small intestine presented itself; as the latter was brought through the abdominal incision a circular ulcer perforated, but was rapidly dealt with. Passing the hand into the left iliac fossa one felt the bladder with an enlarged prostate drawn over towards it by adhesions to bowel, and by adhesions of bowel to parietal peritoneum. These were separated, and the bladder resumed its normal position. Searching for the appendix I then found that there was a complete transposition of the large bowel. The flum ended in the cecum on the left side of the abdomen, the cecum being continued up on the left side as the ascending colon, passing into the transverse colon, and thus descending on the right side as the descending colon. At the level of the iliac crest the descending colon passed at an acute angle to the centre of the brim of the true pelvis to descend as the rectum. A remarkable feature was the absence of the sigmoid flexure. I examined the gall-bladder, and cystic, hepatic, and bile-ducts and found no evidence of gall-stones. There was no transposition of any other abdominal organs. The patient at no time had a temperature during his attacks.

Recovery after the operation has been rapid. The facts here stated will be corroborated by Dr. Douglas P. Blair and Dr. J. Dunn, who were present at the operation.

A CASE OF

NERVE SUTURE WITH IMMEDIATE RETURN OF SENSATION.

By WILLIAM ROBERTSON, M.D. GLASG.

THE reference in THE LANCET of July 24th to denervated muscle, recalls a case I had to deal with some time ago, of which the following is a brief clinical account:—

In 1897 a boy, aged 11, fell from his pony, sustaining a compound fracture of the left humerus near the elbow. The boy cried out and a kaffir pulled the injured arm rather roughly. The sharp edge of the fractured humerus could be easily seen in the wound. No attention at the moment was paid to the innervation of the arm owing to the extensive wound in front of the joint and the setting of the fracture. The limb was put up in rectangular splints. The wound healed rapidly and early movement could be practised. It was soon noticed that atrophy of the forearm and hand was too extreme to have been caused by the mere splinting of the limb, and sensation was bad in the fingers. One night the forefinger came accidentally in the candle and was burned without the patient being aware of it. After the wound was healed the bone united and the joint was mobile. An incision was made over the median nerve some distance above the site of the fracture. A abundant cicatricial tissue was enveloping the nerve. After freeing the nerve from this the sheath was found to be intact, but on running the finger along a gap was observed indicating the complete severance of the nerve within its sheath, the gap measuring perhaps 2 or 3 mm. The sheath was cut through the gap, and when the two ends of the nerve were exposed the surface was found to be covered with small oval bodies, the repair material of a severed nerve. No formed tissue existed between the ends of the nerve. The repair material was shredded off down to normal nerve fibre, and the two ends of the nerve were sutured through with fine silk, in opening the ends the proper alignment of the nerve was observed. The nerve sheath was carefully stitched up. When the boy came out of chloroform, or shortly afterwards, with an exclamation of surprise he told me he could feel his fingers. He could also discern articles placed between fingers and thumb.

The wound healed by first intention. The splint was continued and for a few weeks gentle daily movement of the elbow-joint was all that was attempted. To the integrity of the nerve sheath is to be attributed the early functioning of the nerve cells. The arm since the operation has given no trouble and is now perfect in function and strength. No doubt the nerve was severed inside its sheath by the rough pulling on the arm at the time of the accident.

Mossel Bay, South Africa.

LITERARY INTELLIGENCE.—Messrs. W. Heinemann (Medical Books), Ltd., will shortly publish a new work on "Gout, Its Etiology, Pathology, Course and Treatment," by Dr. L. J. Jones Littlejohn, to contain a section on Ocular Disease by Dr. W. M. Beaumont.

COMPLAINTS AGAINST AN INSURANCE MEDICAL OFFICER.—Complaints were recently made by two patients against a panel doctor in Devonshire, and the report of the committee of inquiry, which was held at Okehampton, was forwarded to the Ministry of Health. Dr. Addison has replied that he is not satisfied that the continuance of the medical officer referred to would be prejudicial to the efficiency of the medical service of the insured, and consequently will take no further action in the matter. One of the complainants was ordered to pay 2 guineas towards the costs of the medical practitioner, but as the other complainant was deceased no order would be made.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 4th, Professor HENRY BRIGGS, the President, being in the chair.

Dr. J. D. BARRIS and Dr. M. DONALDSON presented a short communication on

Acute Inversion of the Uterus: Treatment by Blood Transfusion and Late Replacement.

Dr. Barris said that the patient, a housewife, aged 34, had been admitted to hospital on August 12th on account of collapse and hemorrhage following labour.

She had been married for six years and twice pregnant; the first pregnancy had ended in miscarriage at the third month, September, 1914, and the second in labour at term, October, 1916, when she was delivered of a 10 lb. child without difficulty. The present labour, which was conducted by a midwife, began at 3 A.M. and a child weighing 7 lb. was born at 6.5 A.M. on August 12th, the perineum being torn incompletely. The placenta did not come away spontaneously, and after two hours the midwife delivered it by expression, at the same time pulling on the cord. Profuse hemorrhage followed and the patient "felt something come down." On her admission to hospital at 5 P.M. she appeared blanched and collapsed. Temp. 98° F., pulse 120. A swelling, identified as the uterus, was found rising to 4½ in. above the pubes, and in the position of the fundus a distinct cup-shaped depression could be felt. The vagina contained much fresh blood and blood clot. The fundus uteri could be felt projecting through the external os and lying just inside the vaginal orifice, and a diagnosis of acute inversion was made. It was decided to treat the patient for collapse and hemorrhage and to postpone the replacement of the uterus. Pituitrin, 1 c.cm., was injected hypodermically and a hot vaginal douche was given. Two days later the red cells numbered 1,800,000 and blood transfusion was attempted (citrate method), but owing to a fault in the apparatus only 100 c.cm. could be introduced. The patient continued to bleed and on August 27th the red cells numbered only 1,200,000. 600 c.cm. of blood were transfused on Sept. 3rd, and the number of red corpuscles rose to 2,570,000 on Sept. 4th. Local sepsis, evident within three days of admission, was treated by means of Carrel's tubes inserted into the vagina, using a solution containing 1 in 4000 pot. permang. and 1 per cent. sol. sulph. The irrigation was continuous, and so regulated that if the pads were changed every three hours the bed remained dry. On August 18th, during micturition, the fundus became completely inverted and protruded from the vulva. Considerable shock ensued, and the fundus was wrapped in sterile gauze but not replaced. Three hours later it was irrigated with saline and pushed back into the vagina. Reposition of the uterus, which had involuted well, was carried out on Sept. 29th by means of Aveling's repositior, and was complete within 19 hours of its application. The repositior was removed from the uterine cavity after five minutes' gentle traction. On Oct. 4th patient appeared in good health; the fundus was normal in situation and contour, and no bleeding had occurred.

Dr. Barris added that the case presented several points of interest. It was an addition to those recently described by Dr. Herbert Spencer,¹ and it emphasised the value of late reposition of the uterus, as practised by him. The case also illustrated the value of blood transfusion in marked anemia. The third point of interest was the demonstration that Carrel's tubes could be used for sepsis during the puerperium with no discomfort to the patient.

Discussion on Latent Syphilis during Pregnancy.

Papers on this subject were read by Dr. R. A. HENDRY, Dr. AMAND ROUTH, and Mr. JOHN ADAMS. These are published in full in this issue of THE LANCET.

In the course of the discussion Mr. CHARLES GIBBS said that his 25 years' experience in charge of women and children at the London Lock Hospital had shown him how deplorable was the gross neglect in the treatment of syphilis in pregnant women until the last few years. A poor woman suffering the double burden of pregnancy and the disease could not gain admission

into any hospital except the infirmaries. A few cases were taken in at the Lock Hospital, but most of the women were sent to a neighbouring infirmary for their confinements, returning later for further treatment. During the last few years the Ministry of Health had provided hospital accommodation for some of these women, but the accommodation provided was very small in comparison with the need. Mr. Gibbs urged the supreme importance to the State of affording proper facilities for the treatment of syphilis. It was remarkable how little treatment by modern methods was required to reduce the percentage of dead children born.

Mr. Gibbs's experience in this work was divided into two periods, before and after the discovery of the W.R. and treatment by 606. Dr. Hendry's statistics showed clearly the excellent results of treatment of the mother by mercury. The statistical records of the Lock Hospital at the period when mercury alone was used similarly showed remarkably few deaths in the infant, but the mother had had to receive a prolonged period of mercurial treatment to produce an apparently healthy child. In connexion with the treatment of those infants born without blemish of syphilitic mothers, Mr. Gibbs recalled the practice of a certain surgeon who on finding no signs of syphilis left the children untreated. Since in the vast majority of cases no signs occurred even after prolonged observation it was important to remember that such an infant might not develop signs even if untreated. Mr. Gibbs said that all those adults, children, or infants who showed signs of syphilis or whose W.R. was positive now received a full course or multiple courses of 606 or substitute; but if a patient, adult or infant, showed no signs of syphilis and had a negative W.R., he gave no 606 until one or both of these factors changed. All patients were given a full two or three years' course of mercury, as he was convinced that 606 does not cure syphilis. However, he believed that if the mother, and through her the child, had received 606 or substitute, and both had received two or three years' mercury treatment, the majority of them would be cured. His experience led him to believe that after a sufficient course of mercury for three years further treatment was unnecessary. He considered that massive doses of mercury for prolonged periods are necessary to cure syphilis. In the Lock Hospital infants born without signs and with negative W.R. had in the majority of cases received mercury only. All infants and children showing signs of syphilis had received 606 or substitute by all methods. The intravenous method was preferred, and the drug was extremely easily given to infants by the external jugular vein or the anterior fontanelle; the latter route was also used for obtaining blood for the W.R. It was important to give the mother a full course of 606 after the birth of the child, during breast-feeding.

Mr. Gibbs then gave figures relating to the last 100 syphilitic women and their babies who had been discharged from the Lock Hospital. These figures showed that practically all the children had negative W.R. at birth. This phenomenon obviously could not be explained by any theory that the children were free from syphilis, or that syphilis had been rendered latent by treatment. Mr. Gibbs held that there must be some natural physiological cause for this 97 per cent. negative result. The only theory which seemed to meet these facts was that of Dr. Routh on placental ferments. Mr. Gibbs said that Roux was doing some experimental work on placenta in this particular connexion, using fluid compressed from the placenta in the cultivation of spirochaetes.

Mr. J. E. R. McDONAGH said that once a woman was syphilitic she required treatment throughout each succeeding pregnancy, even if the father was another man who had never had syphilis. Pregnant women who contracted syphilis behaved like those who are not pregnant, so far as the course run by the disease and blood tests were concerned, although as time went on, if repeated pregnancies occurred, the disease seemed to be rendered milder and the C.S.F. became negative. It was possible that repeated pregnancies might result in the spontaneous cure of the disease, although the symptoms might recur, with a positive W.R., after the child-bearing period. Most interesting were those cases which showed symptoms for the first time at the menopause—cases of conceptional syphilis. The most important question arising out of antenatal treatment was that relating to the infectivity of the child. Treatment of the mother in most instances resulted in the birth of a healthy-looking baby, whose

blood was almost invariably negative. Were these children syphilitic, and, if so, would the treatment advised for two to three years prevent the appearance of symptoms in later life? He was under the impression that the children were syphilitic; he always treated them as if they had actually shown signs of the disease, as he had seen many cases in which symptoms of syphilis congenita tarda developed. It was still to be seen whether treatment would prevent these late manifestations. At present Mr. McDonagh was inclined to the view that a large number of cases of late congenital syphilis would be seen from the next 10-30 years onwards.

Mr. KENNETH WALKER said that Dr. Routh's theory of the pathology of latent syphilis in pregnancy was most interesting, but whilst it was possible to accept a great many of his suggestions it was necessary to exhibit some caution. In Mr. Walker's opinion the evidence that the organism of syphilis might exist in some other form than a spirochaete was overwhelming. The absence of spirochaetes in semen which was known on clinical and experimental grounds to be infective was almost conclusive. The same remark might apply to the foetus, and the same fact might explain the failure to find spirochaetes in syphilitic miscarriages. After a certain period these spores or granules would develop into the spirochaetes which were found so readily in the tissues of the syphilitic stillborn child. Whether the chorionic ferments had any action on the organism of syphilis was an entirely different question. It seemed to Mr. Walker that Dr. Routh, anxious for the safety of the developing child, surrounded by all the horrors of spores and spirochaetes, had cast about for a good fairy, and had finally decided that the chorionic ferments must play this rôle; Mr. Walker would have lit rather on the lipoids of the placenta, which must certainly have a strong protecting action. As spirochaetes could now be grown in culture it would surely be possible to test the action of chorionic ferments on spirochaetes. It was difficult to obtain reliable statistics as to the frequency with which a negative W.R. was obtained in syphilitic pregnant women. Out of 226 women attending a Buenos Ayres maternity clinic and exhibiting clinical signs suspicious of syphilis 116 had given a negative W.R.; it was therefore difficult to feel sure that all of these suspicious cases were actually syphilitic.

Dr. EARDLEY HOLLAND said that the only contribution he proposed to make to the discussion was on syphilis as a cause of foetal death. He was sure that the frequency of syphilis as a cause of foetal death had been greatly exaggerated—for example, the Royal Commission on Venereal Diseases had come to the almost ludicrous conclusion that 50 per cent. of stillbirths were due to syphilis. This figure was greatly at variance with the figures obtained by all recent workers. Dr. Holland had personally investigated the cause of foetal death in a mixed sample of 300 dead-born viable foetuses, of which 133 were macerated and 167 fresh.

The investigation consisted in a complete histological examination of the foetal organs and of the placenta, the *S. pallida* being looked for both by the direct and by the Levaditi methods. The health and the W.R. of the mother were also investigated, and, where possible, of the father. Spirochaetes were found in 37 of these foetuses, or 12 per cent. of the whole, 35 of them being macerated and 2 fresh. These were cases of undoubted foetal syphilis, and might be termed cases of active or florid foetal syphilis, as opposed to possible latent foetal syphilis, where spirochaetes could be found. An important question arose whether foetal syphilis could ever be justifiably diagnosed in the absence of spirochaetes. Dr. Holland believed that it could. Accepting the presence of spirochaetes as the primary attribute of syphilis, he had noted the following special changes in the 37 spirochaete-positive foetuses, which he called secondary attributes: A. Positive maternal W.R. in all; B. chondro-epiphysitis, in all; C. great enlargement of the spleen, in 29; D. great enlargement of the liver, in 22; E. placental changes peculiar to syphilis, in 24. The remaining 267 spirochaete-free foetuses were searched for these attributes. The W.R. was positive in the mother in 21 (of which 13 were macerated and 8 were fresh), and he concluded that syphilis could be justifiably diagnosed in 4 of these, who showed a combination of secondary attributes as follows: (1) A, B, E, C; (2) A, B, E; (3) A, E, C; (4) A, B, C.

He believed that the combination of these findings was a justification for the diagnosis of fetal syphilis in the absence of the *S. pallida*. Chondro-epiphysitis alone was sufficient, as it was absolutely pathognomonic. He classed seven other fetuses showing a combination of a positive maternal W.R. and enlargement of the liver and spleen as "probable syphilis," though he did not regard any of these conditions as sufficient for diagnosis by itself. Active signs or a history of syphilis were obtainable in only six of the mothers of the 37 spirochate-positive fetuses.

Latent syphilis, not only in the mother but in the fetus, was of importance, especially in view of the fact that in about 20 per cent. of the macerated fetuses Dr. Holland was unable to discover the cause of death. He quoted the history of one case to illustrate the important question whether any of these had died from syphilis. If so, in what way had the disease acted in killing the fetus? This part of the question, he said, was one which called for further investigation.

In answer to a question by Mr. GIBBS, Dr. HOLLAND explained the pathology of chondro-epiphysitis, which was pathognomonic of congenital syphilis. If the end of the bone were cut through longitudinally the line joining the epiphysis to the diaphysis appeared thick and irregular.—Mr. ULYSSES WILLIAMS said that 15 per cent. of the stillborn fetuses examined by him under the X rays showed a great thickening of this line.—Dr. HENDRY said that chondro-epiphysitis was practically pathognomonic, but sometimes the line was doubtful and sometimes had only small dentations. With regard to Dr. Routh's contention that chorionic ferments prevent the manifestation of syphilis in the first pregnancy, some of his negative cases had developed positive W.R. after pregnancy.—Dr. ROUTH expressed pleasure at the support given to his views on granules; no chorionic ferments had as yet been isolated. He suggested that the cases described by Mr. Adams and Mr. Gibbs were suffering from primary or secondary syphilis which became latent during pregnancy when appropriate treatment enabled healthy children to be born. Answering Dr. HOLLAND, he said that the absence of spirochetes in the fetus made the supposition of an earlier form likely. As regards frequency, the conclusion of the Royal Commission was that 20-25 per cent., not 50 per cent., of the stillbirths were caused by syphilis.—Mr. ADAMS objected to the use of the external jugular vein and still more to the anterior fontanelle for obtaining blood from and administering drugs to infants. It was like sending a Rolls-Royce to fetch a pound of tea. Intramuscular injections could be given in glucose without local irritation and the pricking of a foot which had been placed in hot water would easily yield all the blood necessary for a W.R.

SECTION OF SURGERY.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 3rd, Mr. W. G. SPENCER, the President, being in the chair, when a discussion took place on

Unusual Cases of Gunshot Injury to Blood-vessels.

THE PRESIDENT, in opening the discussion, described a number of cases which he had selected because of their unusual character.

In the first case there was simultaneous wounding of the posterior tibial, the anterior tibial, and the peroneal arteries. Without any obvious reason a sudden swelling appeared in the calf, and it was recognised that a diffuse aneurysm had supervened. After ligation of the three above-mentioned arteries all bleeding ceased, the wounds healed without inflammation, and complete use of the leg was slowly recovered. The President thought that the simultaneous wounding of all three arteries was probably due to the bullet clipping off and driving before it fragments of bone from the tibia, and he considered that all three arteries being ligated without arresting the circulation beyond was doubtless due to the dilatation of the anastomotic circulation during the time which elapsed between the injury and the development of the diffuse aneurysm.

The second case was that of a gluteal aneurysm cut into a year and a half after the injury. There had been laceration of the gluteal muscles and injury to the ilium and pieces of the ilium had been removed during the patient's stay in various hospitals. After a year the wound healed, but

suppuration then recurred. At operation an arterio-venous aneurysm was cut into, which reached about an inch above the sciatic notch. The ligature failed to hold and it was found necessary to tie the internal iliac artery by the transperineal method, the venous hæmorrhage being checked by plugging the wound firmly. No further complications occurred and the wound healed in about six weeks. In this case the presence of an aneurysm was unsuspected; there was no sign of it on palpation owing to the covering by dense scar tissue. Perhaps the existence of the arterio-venous aneurysm might have been discovered by auscultation. Had this been the case it would have been better to have ligatured the internal iliac artery first instead of after the aneurysm had been cut into.

In the third case there was a wound of the commencement of the left axillary artery and of the axillary vein, necessitating amputation of the upper extremity. Sudden severe arterial hæmorrhage occurred from the neck, which could only be controlled by firm digital pressure. It was discovered that the axillary artery had been wounded as it lay on the first rib, and that the axillary vein was also injured. The hæmorrhage was definitely arrested by ligature. Further exploration showed the presence of a comminuted fracture of the scapula with wide necrosis and suppuration infiltrating the muscles on both surfaces of the bone; the fracture had extended into the glenoid cavity and there was pus in the shoulder-joint besides recent extravasation of blood. Hence an inter-scapulo-thoracic amputation was necessary. Healing was complete in about two months and when the patient was last seen the scar was free from pain or tenderness.

The fourth case was one of secondary hæmorrhage of the tongue. There was a widely gaping wound in the left sub-maxillary region and a compound comminuted fracture of the horizontal ramus of the mandible immediately in front of the angle on the left side. A bullet coming from the man's right had cut the right angle of his mouth, entered the right side of the tongue and, passing horizontally across, emerged into the mouth on the left side of the tip of the fauces. It next produced the compound comminuted fracture of the left horizontal ramus in front of the angle, and carried away some of the upper molars. The bullet thus drove the fragments of bone outwards superficial to the blood-vessels, and so made a wide wound of exit extending out as far as the left mastoid process. Ten days after the injury there occurred arterial hæmorrhage into the mouth on the left side, which was temporarily controlled by packing. At operation the hæmorrhage was found to be coming from a hole in the tongue on the left side. The track was followed by laying it open across the dorsal aspect of the tongue, when it was found that the right lingual artery had been wounded about the origin of the dorsalis linguæ, whilst the left artery was intact.

In the fifth case there was a wound involving the left carotid artery, internal jugular and vertebral veins, a diffuse aneurysm being produced. X-ray examination showed the presence of a fragment of shell anterior to the left transverse process of the sixth cervical vertebra. Later a diffuse aneurysm formed. The common carotid artery and internal jugular vein were first ligatured below the site of the injury, and were then exposed and ligatured above the aneurysm. It was found that the fragment of shell had produced a lacerated wound in the common carotid artery and jugular vein about an inch in length. Further oozing of blood followed the removal of the foreign body; it was assumed to come from the vertebral vein, as it could be controlled by the finger pressing just below the sixth transverse process, and no pulsation could be felt there; it was controlled by the gauze plug. The wound healed without complication. The patient recovered consciousness but exhibited complete right hemiplegia and aphasia. Food escaped from his mouth unless it was inserted far back. He understood all that was said, but in attempting to speak giggled and made guttural noises. Five months after the operation he could walk without a stick, but had still some spastic rigidity about the right knee. There was some further improvement in the right arm and in speech, but both were still much impaired in function when the man was examined two years after the operation.

The sixth case was one of wounding of the left vertebral artery consequent on fracture of the atlas, followed by a diffuse aneurysm which proved fatal. A bullet had entered immediately behind and below the left mastoid process and had fractured the left horizontal ramus of the mandible at the junction of the bicuspid and molar teeth. An X-ray photograph recorded merely a fracture of the mandible. There was no sign of the foreign body, which presumably had escaped by the mouth. A few days after admission to hospital attention was attracted for the first time to a swelling under the scar below the left mastoid process with induration around, and it was supposed that suppuration was threatening to recur at the point of entry. The next day it was noted that the swelling yielded on aneurysmal pulsation and a systolic bruit, and the diagnosis

was made of a suppurating aneurysm connected with the external carotid artery or its occipital or posterior auricular branch. Ligation of the external carotid artery, however, did not arrest the pulsation in the swelling, and it was conjectured that the occipital artery arose below the level of the ligation. Whilst searching for it the aneurysm was penetrated, and there was a sudden gush of blood under high pressure. A fracture was palpated splitting horizontally the left transverse process of the atlas, and the blood could be felt to spout through the fissure so made. Much difficulty was experienced owing to previous glandular inflammation and recent infiltration by blood. An attempt to expose the vertebral artery between the fourth and fifth transverse processes failed, and a ligature was passed so as to include the artery and vein as well as the muscle between the transverse processes, thus controlling hemorrhage. The patient did not recover consciousness; there was no reaction to the treatment for shock, and he died eight hours after the operation. A post-mortem examination was not permitted. There was nothing beforehand to draw attention to an injury to the left vertebral artery on the arch of the atlas. It would appear that as the bullet entered it struck the tip of the transverse process of the atlas, causing a horizontal fissured fracture, and a splinter from the fracture punctured the artery. Had one been put right before the commencement of the operation the safest plan would have been to have tied the right vertebral artery first. The President believed the immediate cause of death to be an extravasation of blood which compressed the meninges about the foramen magnum and atlas.

The seventh case was one of excision of an aneurysm which communicated with a plexus of anastomosing vessels. The superficial femoral artery had been wounded in Hunter's canal and operated upon. No details could be obtained. An aneurysm developed, and at the operation, after removal of the superficial portion of the sac, there was noted, besides the artery entering and leaving the sac, three equally large vessels opening into the sac on its deep aspect. The remainder of the sac was sutured, but the aneurysm subsequently dilated and began to point. At the second operation the aneurysm was excised completely; the three large arteries communicating with the profunda femoris were of the size of the superficial femoral itself, and several other small arteries entered the sac. When last seen the patient had regained good use of the limb.

Sir GEORGE H. MAKINS also referred to cases which possessed some unusual characters. He first mentioned the occasional loculation of the sac met with in false aneurysms following gunshot injury. It was obvious that the blood escaping from a wounded artery tended to spread in the direction of least resistance, either along the vascular cleft between the muscles, or along the course taken by the missile which caused the injury. The last named was of most importance with regard to the occurrence of loculation, the missile passing from one to another compartment of a limb or the trunk. The commonest example was furnished by wounds traversing the thigh, where it was not uncommon to find a false aneurysm in the femoral vascular cleft and a large blood cavity or mass of clot in the adductor region, the two being connected by a narrow neck at the point at which the missile had pierced the fascial boundary which separated the two compartments. Another common occurrence was the primary formation of two pools of blood on either side of the interosseous membrane between the bones of the forearm or leg. In any of these cases the collection of blood in the compartment of the artery usually coagulated and formed no part of the final aneurysmal sac. Occasionally the secondary portion of the sac might be cut off, the contained blood might deposit clot, and the fluid serum might remain in direct apposition to, but not in connexion with, the definite aneurysm. In illustration he mentioned a case of wounding by a bullet of the second portion of the subclavian artery. An extensive extravasation of blood into the area of the posterior triangle of the neck resulted, a part of the effusion being deep and limited by the deep cervical fascia, a second portion being superficial to that structure. A well-defined aneurysm was found beneath the anterior scalene muscle, while superficial to the fascia a large fluid collection remained. The matter was one of practical importance because pulsation was communicated to the fluid of the superficial cavity and the condition was thought to be one of immediate danger. An operation on the fourteenth day showed a loculus full of straw-coloured serum, and it was

evident that no urgency had really existed for early operation. In ten cases in which there was an injury to the subclavian artery which at the same time had been the source of the blood in a hemothorax the subclavian aneurysm was small and developed tardily. It was assumed in explanation that the blood passed in the direction of least resistance into the pleural sac, and any larger primary collection of clot or blood in the neck did not take place. The sac in traumatic aneurysms was sometimes formed by unlikely structures. He mentioned a case in which an old tuberculous cavity in the apex of the right lung provided the sac of an aneurysm, or rather an arterio-venous hematoma, which formed in connexion with the innominate artery. The pleural sac had been obliterated by adhesions secondary to the tuberculous disease, hence the blood from the wounded artery and vein passed in the direction of least resistance into the cavity of the lung. The patient died on the seventh day after profuse hemoptysis. Mr. Lawford Knaggs had published a case in which the sac was located in the substance of a fractured humerus, raising the suspicion that a malignant tumour had to be dealt with. More than one case had been observed where ossification of the sac was commencing at an early date. This had been seen particularly in the thigh in instances in which the femur was implicated, and the condition threw some light on that of traumatic myositis ossificans. It would be of interest to know if any cases of traumatic aneurysm of the aorta had been observed. In the War Office collection several wounds of the aorta were to be seen, some so limited in extent that there was reason to believe that if the patient had not died the injury might have remained undetected. Two specimens of extensive wounds were of interest. In one case there was a large arterial hematoma, and the patient died on the sixteenth day as the result of hemorrhage and toxæmia, and the abdominal swelling had not attracted attention during life. In the second a false aneurysm of the thoracic aorta was reaching the condition of a well-defined sac when it burst into the gullet on the thirty-seventh day. The rarity with which infection took place was somewhat remarkable. In looking through a large series of cases a number in which fragments of shells were found within the sac rendered this the more striking, since the clot must have to contend with gross contamination. It might well be, however, that some of the numerous cases of early secondary hemorrhage or extension were really to be referred to this cause. Infection might also be the explanation of tardy development in some of the cases in which an aneurysm was only detected at a late date. Experience gained in the war familiarised us with the effect of infection on partially injured vessels, in giving rise to secondary hemorrhage, and to development of aneurysms in the exposed extremities of large arteries in infected amputation stumps. He asked whether any members present had seen well-developed venous sacs in cases of arterio-venous aneurysms. For many reasons he was inclined to doubt the occurrence of this form of arterio-venous aneurysm, although the description of it was classical. One such specimen was contained in the War Office collection.

Mr. G. T. MULHALLY described four cases in which a foreign body was lodged in vessels. In the first case the fragment appeared to be on the left side of the ninth dorsal vertebra, and in gouging it out profuse hemorrhage was followed by death. The fragment was situated partly in the bone and partly in the thoracic aorta. In the second case a fragment of wire $\frac{1}{2}$ in. long was situated in the popliteal artery, causing thrombosis. The patient died from recurrent hemorrhage. The third and fourth cases showed variation in the peripheral pulse as a result of the lodging of a fragment: in the third case the fragment was in the superficial femoral artery, and in the fourth case it was in the axillary artery. He mentioned two cases in which the injury was in an unusual position. In one case the superficial femoral vein was divided below the bifurcation of the femoral artery, and there was a tear at the junction of the superficial and deep femoral arteries; in the other there was a small transverse

tear on the right side of the subclavian artery about an inch from its origin. He spoke of two instances of vessels being ruptured without being touched by missiles. In one the peroneal artery was ruptured; in the other the anterior tibial compartment was not opened, but the *venae comites* of the anterior tibial artery contained four tears, though the artery was not touched.

Mr. R. L. KNAGGS, Mr. CYRIL NITCH, Mr. A. W. SHEEN, and Mr. J. E. H. ROBERTS also took part in the discussion.

SUB-SECTION OF ORTHOPÆDICS.

Exhibition of Clinical Cases.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 2nd, Mr. E. LAMING EVANS, the President, being in the chair, when clinical cases were exhibited.

Multiple Congenital Dislocations.

The PRESIDENT showed a case of congenital dislocation of the knees with associated deformities at the elbows, hips, and ankles, in a boy, aged 15 years, who was 44 inches high. He was somewhat backward, somnolent, but good-natured. He could stand and walk short distances without help, but his normal mode of progression was by means of crutches. In the standing position there was a posterior projection of the ham region through an angle of 40°-50°, which was caused by the upward and forward dislocation of the tibia, the salient point of the angle being the two femoral condyles. X ray examination showed that the joint was locked by contact of the posterior surface of the tibial condyles against the anterior surface of the femoral shaft above the normal cartilaginous surface for the patella. In the recumbent position the whole limb was rotated outwards at the hip-joint, so producing the appearance of a valgoid condition, but the two femoral condyles could be felt clearly upon the inner side. The patella was present on both sides; flexion was checked at 5° of hyper-extension by the shortening of all the structures in the front of the joint. The hip-joints showed shallow acetabula. On the left side only a quarter of the head was covered by the acetabular roof; on the right side one-third was covered. Both femoral heads could be subluxated by manipulation. The heads of both radii were dislocated forwards and upwards. It was proposed, after obtaining plantigrade feet, to excise the knee-joint.

Mr. R. C. ELMSLIE considered excision of the knee-joints to be the best method of treatment in order to obtain ankylosis. At such a late age he would not care to try to get a flexible knee-joint. The hips would allow the patient to walk with stiff knees.

Mr. ELMSLIE gave a further report on a case of

Cyst of the Head of the Tibia,

which he had shown before the section at the meeting held on March 2nd. The cavity contained brown fluid, but there were no solid contents; the walls consisted of bare bone which was covered in places by a grey membrane. Microscopic examination showed that the bone around the cyst and the marrow were both normal. The grey membrane consisted of fibrous tissue, in parts very vascular and cellular. Giant cells were not a conspicuous feature. In some places there were traces of a very cellular tissue, which lay on the inner side of the fibrous membrane; this consisted of small round cells and was very vascular, the vessels being fully formed. Most of the solid matter obtained from the interior of the cyst proved to be blood clot.

A discussion took place on Mr. H. A. T. FAIRBANK'S case of

Deformities Associated with Chronic Nephritis,

which was shown before the section on Oct. 5th.¹ The patient was a girl of 15 years, in whom there was genu varum, some enlargement of the lower epiphyses of both tibiae and fibulae, and curving of both ulnae and radii. X ray examination showed, besides other abnormalities,

a crack running into the shaft on the outer side of each tibia for about three-quarters of an inch, nearly parallel to the adjacent portion of the epiphyseal line. Mr. Fairbank said that Mr. D. H. PATERSON had reported three cases before the Section for the Study of Disease in Children in April last. In these cases X ray examination showed the presence of multiple fractures in the juxta-epiphyseal region of the long bones, while microscopic section of the diaphyseal bone in this region showed deficient calcification and irregular ossification somewhat similar to rickets, but the epiphyseal lines were straight. In the case shown the X ray appearances were quite unlike rickets. He suggested that the cracks in the tibiae in his case were the first signs of a juxta-epiphyseal fracture which would gradually spread till complete. In Mr. PATERSON'S cases there was no history of the children having suffered from clinical fractures, though the X ray examination revealed that such had occurred. Since the case was shown he had seen in King's College Hospital Museum a complete specimen of an adult dwarf which presented many deformities of the long bones, and short forearms not unlike the forearms in this case. The ulna was the shorter bone of the two, and the radial articular surface was very oblique, as was seen in the radiograms of this case. There was also maldevelopment and fusion of vertebrae in the upper dorsal and in the lower lumbar and lumbosacral regions.

Mr. D. H. PATERSON spoke of the cases which he had shown and of those which had been described by Dr. Hugh Barber of Derby, Dr. H. Morley Fletcher, and by Dr. H. C. Cameron, who described them as osteomalacia associated with chronic nephritis. In the five cases reported by Dr. Barber death from uræmia had followed operation. He therefore urged the importance of careful examination of the urine in children and young adults who were brought to orthopaedic surgeons for operation for multiple deformities in order to avoid a possible fatal issue. He exhibited radiograms of his cases showing areas of uncalcified bone in the upper ends of the tibia which resulted in fracture.

Mr. B. WHITCHURCH HOWELL showed a case of

Internal Derangement of the Right Knee-joint

in a boy of 8 years, the result of a blow on the front of the right thigh above the patella. Much synovitis followed. He had been treated at hospital by a compression bandage and gutter splint. When the fluid had subsided it was found that he could not extend his knee to the full extent, any attempt to do so passively producing pain, especially behind and on each side of the ligamentum patella, in which area the tissues were thickened. There was no abnormal mobility. X ray examination showed injury to the bone of the forepart of the tibial plateau, chiefly in the middle line, suggestive of a discoid-shaped loose body. Mr. Howell asked for opinions as to the exact nature of the injury and the best line of treatment.—Mr. E. MUNHEAD LITTLE considered that a small portion of bone from the head of the tibia had been detached. He would splint for a time in an endeavour to recover the lost degree of extension.—Mr. ROWLEY BRISTOW thought the condition was one of ecchymosis in the infrapatellar pad of fat, and suggested raising the heel of the boot in order to limit extension. He would not advise exploration without more conclusive evidence of the presence of a loose body.—Mr. ELMSLIE would straighten by splinting, under anaesthesia if necessary, for a month or six weeks.—Mr. HOWELL, in reply, felt that there was a bony block which could only be removed by operation. Splintage had already been tried.

Mr. FAIRBANK also showed a case of

Paralytic Subluxation of the Hip with Paralysis of Adductors.

The patient was a girl of 4 years, who had had an attack of poliomyelitis at the age of 4 months. She had never walked, but could sit up. She lay with the pelvis tilted up on the right side; there was a lumbar curve to the left with well-marked rotation. The right leg seemed to be completely paralysed, including all the muscles about the hip-joint, with the possible exception of the rectus femoris. The head of the

¹ Report in THE LANCET, Oct. 23rd, p. 851.

femur was subluxated on the upper lip of the acetabulum. Adduction was slightly limited as compared with the other side, but abduction was excessive. There was no response to faradism in any muscles of the right leg. The ankle was flail. In the left leg the adductor longus was the only adductor which was active; the hamstrings and gastrocnemius were also active. There was equino-varus, now in process of correction. Radiograms of the right hip confirmed the diagnosis of paralytic subluxation. There was nothing to suggest that the displacement was congenital in origin. The case was shown on account of the rarity of paralytic dislocation of the hip, and more particularly because the displacement in this case seemed to have occurred without adequate cause. The few similar cases he had seen had all shown active adductor muscles and weak or paralysed abductors. Except for the habitual position of adduction in this case there seemed to be nothing to account for the displacement, the paralysis being complete.

Mr. FAIRBANK also showed the skiagrams of another case of Paralytic Subluxation of the Hip-joint in a girl of 14 years, in whom the adductors were active and the abductors paralysed.

SECTION OF LARYNGOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on Nov. 5th under the Presidency of Dr. W. JOHNSON HORNE.

Leontiasis Ossium.

Dr. H. LAMBERT LACK showed a woman the subject of this condition. The extensive thickening of the bones of the skull and face caused marked deformity, and the exhibitor asked if any treatment would improve the patient's appearance.

Dr. A. J. HUTCHISON spoke of a boy aged 15, who was under his care some years ago with a similar condition. For three years the boy had nasal obstruction, which seemed to pass off; but it returned later accompanied by swelling of the face, which increased rapidly and much disfigured him. Microscopically it was sarcoma, but it was thought to be no more than mildly malignant.—Dr. W. S. SYME said he had seen the condition associated with suppuration.—Mr. E. D. DAVIS said the late Sir Victor Horsley operated on six such cases, and found it was vascular, inflammatory, rarefied bone. Mr. Davis had himself had cases to treat but had been unable to find any cause. Though sepsis and syphilis had been excluded the increase persisted.—Dr. JAMES DONELAN spoke of a case in which the affected bone of the skull was one and a half inches thick. It was thought to be due to irritation followed by infection.—Mr. H. D. GILLIES said the origin of the trouble in this case was attributed by the husband to removal of the teeth, and probably there was a septic focus in the alveolus of the jaw.

Multiple Pharyngeal Polypi.

Dr. WILLIAM HILL showed a patient, aged 55, who had had multiple polypi in the deep pharynx. A pedunculated polypus was regurgitated from the gullet into the pharynx, and it was found to be attached to the under-surface of Killian's pharyngeal lip. The growths were removed.

Recurrent Paralysis with Tongue Involvement.

Mr. W. HOWARTH showed two cases of recurrent paralysis, with involvement of tongue and palate.

The first patient noticed an alteration in his voice four years ago, and he had since lost weight and had indifferent health. Two years ago there was complete fixation of the right side of the larynx. X rays showed coarse striation of the upper part of the right lung. Wassermann was negative. Later there was partial atrophy of the right side of the tongue, with difficulty in swallowing and regurgitation of fluids through the nose. Local bulbar palsy had been suggested as the cause of the symptoms. The second case was that of a lieutenant whose left orbit was wounded by a machine-gun bullet four years ago, destroying the eye, the wound of exit being an inch behind the right mastoid process. There was now complete deafness in the right ear, total paralysis of the right side of the larynx, some difficulty

in swallowing, partial atrophy, and loss of mobility of the right side of the tongue, and much drooping of the right shoulder. Probably the bullet damaged fibres of the vagus, glosso-pharyngeal, hypo-glossal, and spinal accessory nerves in the region of the foramen ovale.

Dr. HILL said the usual view was that cases of so-called unilateral bulbar paralysis were due to a tumour in the pontine angle. The prognosis was not necessarily very bad.

Cyst of Vocal Cord.

Mr. W. M. MOLLISON showed by means of the epidiascope a cyst, 2 mm. in diameter, which he had removed from the vocal cord of a trained nurse by the direct method. Microscopically it was found to be a cyst lined with ciliated epithelium. He also showed a tonsil of a boy aged 6, which was found to contain giant-cell systems.

Mr. W. ROSE, discussing the second case, said it was not very rare to find microscopical evidence of tubercle in tonsils removed from children who had obvious tuberculous glands in the neck.—Dr. DAN MCKENZIE said it should be recognised that in the case of enlarged—presumably tuberculous—glands in the neck the tonsils were usually smaller, not larger, than normal.—This was confirmed by Sir WILLIAM MILLIGAN and the PRESIDENT.

Lympho-sarcoma of Post-nasal Space Treated by Radium

Mr. C. W. HOPE exhibited a man, aged 34, who was admitted to hospital on account of nasal obstruction with occasional blood-stained nasal discharge. A large bluish-red mass in the post-nasal space was found, pushing down the soft palate, a large mass behind the left posterior faucial pillar, and a smaller swelling on the right side. Wassermann was negative. Scattered glands were found, one examined being reported to be lympho-sarcoma. Treatment by radium buried in the growths (60 to 30 mg.) resulted, in less than a month, in the clearing of the post-nasal space, a reduction in the size of the faucial pillar, and the glands in the neck being brought to one-third their previous bulk.

Mr. H. TILLEY related a case in which a man, aged 72, had a large tonsil and a "throaty" voice. This was treated by galvano-cautery about twice a week and it disappeared. A few months later the patient complained of discharge from one ear and nasal obstruction. It was due to reappearance in the post-nasal space of a sarcomatous tumour. It disappeared after applying radium once or twice; breathing and hearing became good again, and the discharge from the ear ceased. When next he appeared he had a mass over the sterno-mastoid, and again after radium was applied it vanished. About ten months later the patient consulted a leading oculist on account of proptosis, probably due to recurrence behind the orbit. He died in a nursing home after vomiting a good deal of blood. Mr. Tilley's prognosis in this case was therefore grave.

Sir WILLIAM MILLIGAN raised the question of radium possibly inducing severe blood changes, such as the patients referred to exhibited, and which his own patients who had had a similar treatment showed. His experience was that this severe anemia did not occur in subjects of lympho-sarcoma who did not have radium applied.—Mr. ANDREW WYLIE spoke of a case of lympho-sarcoma who contracted erysipelas accidentally, and in three weeks the growth had disappeared.

Diagnosis of Carcinoma of Larynx.

Mr. SOMERVILLE HASTINGS showed a woman, aged 52, who had sprouting granulations on one cord, a portion of which was removed and reported to be epithelioma. The Wassermann test, then and subsequently, was returned as negative. Iodides were, however, given and proved so beneficial that the exhibitor regarded it as a syphilitic case, in spite of the expert pathological finding.—Mr. ROSE agreed there was no evidence of epithelioma in the larynx at present, and did not think the sections were those of epithelioma.—Mr. HOPE did not regard the benign course as contradicting the microscopist's view that it was epithelioma, as many of these cases showed very low malignancy.

Lupus Treated by Sodium Iodide and Ionisation.

Mr. DOUGLAS HARMER and Mr. T. H. JUST showed two male patients, aged respectively 18 and 41, whose lupus was successfully treated on the Copenhagen plan—sodium iodide and ionisation. The younger patient had active lupus in the upper part of the vestibule on each side of the nose, the whole hard palate and part of the soft were covered with nodules, and the epiglottis was nodular and partly ulcerated. During four months he had had 13 treatments by ionisation. The second patient came with the skin covering the cartilaginous parts of the nose much thickened and swollen, the anterior nares and columella were ulcerated over their whole surface and covered with crusts. He had had 15 ionisation treatments in seven months.

Actinomycosis of Upper Jaw.

Mr. HARMER and Mr. JUST also showed a butcher's assistant who, last February, had a tooth removed to relieve an abscess in the upper jaw. The face swelled, and pus escaped externally, and oedema of the lower eyelid supervened. A subperiosteal abscess was opened, and the pus contained actinomycotic granules. From these an autogenous vaccine was prepared, and under treatment by this the inflammation was gradually subsiding.

Other cases were also shown and discussed.

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

THE second meeting of the society for the session was held in the Faculty Hall, Glasgow, on Nov. 5th, when Dr. LEONARD FINDLAY made a communication on

Epidemic Encephalitis (Encephalitis Lethargica) in Childhood.

based on an analysis of 23 cases observed during the present year. Most of the cases sickened during the month of May and 20 were boys. The salient features were sudden onset with or without fever, choreiform movements and some form of paralysis, most frequently of a cranial nerve and especially of the intrinsic or extrinsic muscles of the eyeballs. In some of the early cases marked congestion of the optic discs was observed. The chorea passing off, the child usually passed into a state of lethargy which was more less pronounced and lasted for varying periods. On recovering from the lethargy, the most peculiar night restlessness appeared, and this, he stated, has been a most typical and striking feature of the cases. The children were unable to sleep at night, but spent the time shaking the pillows, arranging the bedclothes, performing duties of the toilet, muttering and singing to themselves. They might even get up out of bed, dress themselves, and go out into the streets to play; they also developed dirty habits—e.g., defecated on the floor and smeared the bed and bedding with the excreta. During the day at this period nothing abnormal except the remnant of paralysis may be noted, or a certain degree of drowsiness might be present. Suggestion was tried without effect, although from the tendency of the nocturnal restlessness to disappear on change of surroundings, this condition seemed to be of a psychic nature.

Results of Examination of Cerebro-spinal Fluid.

Dr. CECILIA SHISKIN recorded the results of the examination of the cerebro-spinal fluid in the cases dealt with by Dr. Findlay. Like other workers, she had found no marked change in pressure, colour, sugar content, cytology, or bacteriology. Lange's colloidal gold test was performed in 20 cases, and a luetic type of reaction was obtained in 16 cases. In some the reaction was as marked as in the case of general paralysis of the insane, but the Wassermann reaction was always negative. It was found that the positive Lange reaction was only obtained when excess of globulin was present. It was suggested that the reaction depended on a combination of globulin and toxin, and that the etiological factor was of the nature of a spirochete. This thesis was supported by finding a normal cerebro-spinal fluid not like one from a case of meningitis on being secondarily infected, but in experiments where normal cerebro-spinal fluid was inoculated with spirochetes it was not found possible to induce the luetic type of reaction.

In the discussion that followed, Dr. A. K. CHALMERS, medical officer of health of Glasgow, speculated as to a possible relationship between influenza and the condition described by Dr. Findlay.

Dr. WILLIAM M. ELLIOTT showed a series of microscopic sections illustrative of brain lesions in epidemic encephalitis.

Reviews and Notices of Books.

HUMAN PARASITOLOGY.

With Notes on Bacteriology, Mycology, Laboratory Diagnosis, Hematology, and Serology. By DAMASO RIVAS, B.S. Biol., M.S., M.D., Ph.D. London and Philadelphia: W. B. Saunders Company. 1920. Illustrated. Pp. 715. 35s.

AN up-to-date text-book of human parasitology has long been overdue, so that a pleasant feeling of anticipation is aroused on turning over the pages of this attractive-looking volume. The book is well printed on good paper and illustrated with 422 figures and 16 plates, several of them coloured. Of the former 127 have been borrowed from Brumpt's "Tréculs de Parasitologie" and 41 from Castellani and Chalmers's "Manual of Tropical Medicine," and while the book contains little information which cannot be found in either of these volumes many of the extreme views expressed in the latter have been reproduced here. It appears that the author has not followed the literature of the last few years and has relied for much of his information on published text-books, which are themselves out of date. The book gives a good general survey of the extent of human parasitology, but as a text-book for students we feel that it may mislead.

The Protozoal section is behind the times. Chromidia are said to be derived from cytoplasmic remains, while mitosis is defined as a primary division of the nucleus into two parts followed by a similar division of the cytoplasm. *Entamoeba coli* is said to be readily cultivated, while *E. histolytica*, according to the author, feeds on decayed matter. *E. coli*, *E. histolytica*, and *E. tetragena* are treated as separate species, while autogamy as occurring in *E. coli* is illustrated by a diagram from Wenyon, though this observer has long since abandoned the view. The author claims to have found *E. histolytica* and its cysts in pyorrhea, though from his figure the so-called cysts appear to be degenerate polynuclear leucocytes. Many undoubtedly spurious species of *entamoeba* are included, while some of the now well-known forms are omitted. The contribution does not compare well with Dobell's account of the amœbe living in man, which was published over a year ago.

The Spirochetes are considered as flagellates, a view which hardly any accredited parasitologist upholds at the present time, while Schaudinn's views on the development of halteridium and the relation of the intracorporeal parasites to the trypanosomes are again brought forward, though they have long since been disproved. *Leishmania* is said to have been found in horses and rabbits, and *L. donovani* to be not inoculable to animals. The culture of *leishmania* is mentioned in such a manner that the reader would suppose it to be something of a curiosity and not a procedure which is of almost daily occurrence in many laboratories. *Trypanosoma gambiense* and *T. rhodesiense* are both described, and the diseases which they cause in man are said to be similar if not identical, whereas it is well known that the latter produces a much severer type of infection than the former. The description of the development in the tsetse-fly is confused, and a sexual as well as an intracellular stage is mentioned, though neither of these has been demonstrated.

The account of the Human Intestinal Flagellates is as inadequate as that of the entamoeba, and the same may be said of the coccidia, no mention being made of the three undoubted species which have been described in recent years. The development of the malaria parasites in the mosquito is given as taking place far too rapidly. Yellow fever is classed with the filterable viruses, but it is mentioned that Noguchi and Paraja claim to have found a flagellate in the blood. The author evidently means a spirochete, but having admitted these organisms to the protozoa he might have given a more complete account of Noguchi's most important work.

The section devoted to Helminthology is better than that on protozoology and is well illustrated with figures

from well-known treatises on the subject. A clearer account, with figures, of the very important development of the schistosomes in molluscs as worked out by the Japanese, and later by Leiper and others, might have been given. The author seems still to regard the direct invasion of the skin by miracidia as worth discussion. No mention is made of the distinctive hosts of *S. mansoni* and *S. haematobium*, as demonstrated by Leiper in Egypt. In the table facing p. 242 the genital pore of schistosoma is said to be anterior to the ventral sucker, while on p. 259 it is stated to be behind it. In the somewhat lengthy discussion on the periodicity of filaria no mention is made of Bahr's work in Fiji, and in connexion with *Filaria loa* Leiper's work on chrysops is completely ignored.

In the section on the Pathogenesis of the Body Louse it is stated that "it has been said to transmit the parasite of relapsing fever and of typhus fever." The student will hardly realise from this that it is now a well-established fact. No mention of the transmission of trench fever by lice is made. On the other hand, the bed-bug is definitely stated to transmit *Leishmania donovani* and *Trypanosoma cruzi*, although in neither case has this been proved to take place. By a curious error on p. 552 *Glossina palpalis* is stated to transmit *Trypanosoma brucei*.

The section on Vegetable Parasites covers much the same ground as Brumpt's text-book. An Appendix gives an account of the uses of the microscope and the methods of mounting worms as museum specimens. Under Bacteriology, Mycology, and Protozoology a few practical hints for laboratory workers are given, but in the examination of intestinal protozoa the use of iodine in the diagnosis of cysts is not mentioned, and in the method of staining entamoeba the wet fixation is described, but the student is instructed to dry the film before mounting—a fatal procedure. The last chapter deals with Hematology and Serology and the usual methods of blood technique and of the Wassermann reaction are described.

In the preface the author protests against the constant change of name to which parasites are subjected, and says that he has followed the International Rules of Nomenclature. Yet we find that four distinct names are used in this book for a single parasite—namely, *Trichiuris trichiurus*, *Trichuris trichiuras*, *Trichocephalus trichiura*, and *Trichocephalus trichiuris*, while in the index we find *Trichiuris trichiura*. Space is occupied with an account of the treatment of malaria, ankylostomiasis, and other helminthic infections, without mention of emetine for amœbic dysentery or of tartar emetic for leishmania and schistosoma infections.

We rise from a perusal of this latest treatise on human parasitology with a feeling of disappointment. It contains much information which is correct and attractively presented. But there are so many errors of statement and omissions as to invalidate its use as a text-book for the student. Advances made during the last few years are passed over or receive casual mention. We trust the author will take an early opportunity of remedying these real defects.

MEDICINE IN ENGLAND DURING THE REIGN OF GEORGE III.

Being the FitzPatrick Lectures 1917-1918, delivered before the Royal College of Physicians of London. By ARNOLD CHAPLIN, M.D.Camb., F.R.C.P. London: Henry Kimpton and Co., and the Author at 3, York Gate. 1920. Pp. 141. 6s.

Dr. Chaplin has collected a vast amount of information as to medical matters during the 60 years of the reign of George III., on some of which we made comment in a leading article (THE LANCET, Nov. 24th, 1917). The book now published deals more with the conditions under which medicine flourished than with the art and science itself, and we are a little disappointed that the author did not give us some pictures of the medical life of the time, because no one could be better qualified than he to do so. His somewhat austere and restrained accounts of the condition of the medical profession in 1760, of the state of medical education,

of the conflict between the Fellows and Licentiates, of the naval and military medical services, and of public health matters, informing as they are and valuable from their wealth of bibliographical references, call, we feel, for the relief given by personalia.

When Dr. Chaplin departs from his restraint and lets himself go his narrative becomes fascinating. His accounts of Thomas Young and William Charles Wells show how he can write when his subject inspires him. It is curious that although the author writes so enthusiastically of Young and Wells, whose claim to fame rests more upon their researches in physics than in medicine, he does not mention Joseph Black. But for those who have imagination Dr. Chaplin's lectures are stimulating. Take these bald figures from the tables given on p. 135 of "The Composition of the College of Physicians" in 1746 and compare it with the list for 1817:—

1746.		1817.	
FELLOWS (54).		FELLOWS (89).	
In West End	7.	In West End	38
„ City... ..	34	„ City... ..	7
Elsewhere	13	Elsewhere	44
LICENTIATES (24).		LICENTIATES (224).	
In West End	7.	In West End	67
„ City... ..	13	„ City... ..	25
Elsewhere	4	Elsewhere	132

Here we see at once the gradual flow of the tide of professional and fashionable life from the City, through Soho to the Cavendish-square and Harley-street district, where, however, the consulting physician or surgeon has stayed for the hundred years since 1817. Incidentally we may recall the fact that one of the most notable inhabitants of Harley-street was the infamous and fashionable quack St. John Long, who practised at No. 41 from about 1829.

Much has been written and spoken of late years as to the overcrowded condition of the medical profession in these islands. Dr. Chaplin, however, shows by some figures extracted from "The Medical Register" for 1782 that the proportion of practitioners to population at that date did not differ much from that of the present day. In 1782 there was 1 medical man for every 1752 persons in England and Wales; at the present time the figures are 1 medical man to 1440 persons. For London the figures are: in 1782, 1 medical man to 840 persons; at the present day, 1 to 705 persons. The scale of remuneration has not increased; a modern consultant charges 2 or 3 guineas as against the 1 guinea fee of his predecessors, but the purchasing power of the sovereign has markedly decreased—to say nothing of the existing slump, while the services which he renders are more costly. We rise from reading Dr. Chaplin's lectures with the hope that some day he will give us a more freely written and expanded account of medical men and medicine in the days of George III.—it is not ungrateful to ask for more: it is appreciative.

ANATOMY AND EMBRYOLOGY OF THE NOSE, &c.

The Nose, Paranasal Sinuses, Naso-lacrimal Passages, and Olfactory Organ in Man: a Genetic, Developmental, and Anatomico-physiological Consideration. By J. PARSONS SCHAEFFER, A.M., M.D., Ph.D. Philadelphia: P. Blakiston's Son and Co. 1920. Pp. 377.

Professor Parsons Schaeffer has produced a large, one might almost say a monumental, book on the anatomy and embryology of the regions mentioned in the title. A feature of the work is the very numerous and excellent collection of illustrations, which are beautifully reproduced and cannot fail to be of great value to anyone studying the anatomical minutiae of the nares and their accessory cavities. The text is, for the most part, clearly written, in spite of the over-frequent repetition of certain points, but it could be wished that the interests of the practising rhinologist had been more constantly kept in mind, and that those details of especial value in operative work had been elucidated with a thoroughness commensurate with the size and fullness of the book. Thus, there is a table giving the distance of the sphenoidal ostium from the root

and floor of the sinus, but no mention of its position relative to the mid-plane of the head; the only skiagrams are of dried skulls, and have not been taken with the proper orientation necessary in clinical work; Pfahler's method of accessory-sinus skiagraphy, in which the film is placed in the mouth, is certainly mentioned, but a reproduction of a skiagraph by this method would have been welcome. Of the naso-lacrimal passage the author makes the point that numerous irregularities and diverticula often render probing impossible without the establishment of false passages; his description of the external relations of the lacrimal sac, however, will not greatly help the surgeon who wishes to excise it. Subsequent chapters deal thoroughly with the arterial, venous, and lymphatic supply, and with the nervous connexions, and the "genital spots" of Fleiss are fully discussed. The section on the anatomy of the olfactory apparatus is particularly good, and there is a final chapter on "physiological addenda." The work is a notable contribution to anatomical literature.

EPIDEMIC ENCEPHALITIS

(Encephalitis Lethargica). By FREDERICK TILNEY, M.D., Ph.D., Professor of Neurology, Columbia University, &c.; and HUBERT S. HOWE, A.M., M.B., Instructor in Neurology, Columbia University. New York: Paul B. Hoeber. 1920. Pp. 252. \$3.50.

LETHARGIC encephalitis certainly deserves a monograph to itself. During the last three years the disease has appeared all over the globe, in a series of epidemics with features in common and with somewhat unexpected clinical differences, rendering a *revue d'ensemble* very desirable. The authors have had considerable experience of the disease, and have illustrated their book with personal cases and with good pathological and clinical photographs. On the clinical side the varieties already familiar to the neurologist receive full consideration, and the pathological descriptions are remarkably complete. Their general conclusion is that the affection is allied to poliomyelitis, but not identical with it, and that there is little real evidential basis for regarding it and influenza as one and the same. In view of the fact that clinical data are constantly accumulating, it is not surprising there is little reference to the possibility of one of the manifestations of the disease being analogous to Dublin's disease, though the myoclonic variety is mentioned. The book lacks a good index, and the bibliography might with advantage have been considerably extended. We note with approval the critical attitude of the authors as to the alleged microbial agent and its communication to animals. Many unsuccessful experiments along this line have been recorded; the diplostreptococcus of Wiesner seems to have been a contamination.

NEUROLOGICAL AND OTHER PAPERS.

Reprinted from the Writings of JOHN MICHELL CLARKE, M.A., M.D. Cantab., LL.D. Bristol: J. W. Arrowsmith, Ltd. 1920. Pp. 263. 10s. 6d.

We are glad to have this memorial of a distinguished neurologist, known to many as a man of wide and scholarly outlook and culture, and trust it will find its place on the shelves of all whose interest lies in many study of neurology. Dr. Michell Clarke made many contributions to his subject, of which only a selection is here given, but it includes his Bradshaw lecture¹ on the nervous affections of the sixth and seventh decades of life, and papers on migraine, cerebellar tumours, spinal cord degenerations in anaemia, toxic polyneuritis, and others already known and valued for their clinical insight and pathological minuteness. Those of a more general nature, forming the second part of the volume, are no less interesting. Several of these papers appeared in our own columns,² but memories are short, and new literature ever pushes older contributions into the background, but these original papers of Dr. Michell Clarke will, we are convinced, have an honoured place and an abiding value.

¹ THE LANCET, 1915, II., 1016, 1009.

² THE LANCET, 1907, I., 1772, and II., 538; 1912, II., 538.

APHASIA AND ASSOCIATED SPEECH PROBLEMS.

By MICHAEL OSNATO, M.D., Associate in Neurology, Columbia University, &c. Preface by FREDERICK TILNEY, M.D., Professor of Neurology, Columbia University. New York: Paul B. Hoeber. 1920. Pp. 191. \$2.50.

THIS readable little book provides a good illustration of the impracticability of attempting to deal with a vast, complex, and controversial subject in comparatively small compass. Dr. Osnato's general thesis is that "intelligence in its widest sense, apraxia, and aphasia are one and the same process, that they develop together and disintegrate together"; and again, "the function of speech and voluntary movement is an integral part of the development of the functions of the entire brain, and is incapable of being anatomically, physiologically, or psychologically separated into centres." To establish so iconoclastic a hypothesis the writer must in the first place supply conclusive pathological evidence of a positive kind militating against cortical localisation, and in the second place explain away some 1500 autopsies on cases of aphasia, which go to show that the function of speech is ordinarily located in the left hemisphere as opposed to the right, and in a certain area of that hemisphere. Neither of these procedures, however, receives any consideration from the author, whose method it is to quote cases favouring his contention and ignore others confuting it. No contribution to a vexed scientific question can have any value if it lacks the elementary virtue of unprejudiced approach.

PSYCHONEUROSES OF WAR AND PEACE.

By MILLAIS CULPIN, M.D., F.R.C.S., Lecturer in Psychoneuroses, London Hospital. Cambridge University Press. 1920. Pp. 128. 10s.

WHAT will appeal to the general medical reader in Dr. Millais Culpin's slender volume is his engaging candour over failures and successes alike, and the complete absence of anything like dogmatism. When we read of his difficulties with patients the author seems to reveal the working of his own mind in a fashion as charming as it is rare in medical literature. Dr. Culpin's general position is somewhat eclectic in that he chooses what he finds useful out of any or all of the varieties of psychotherapy as practised to-day; but he admits that for the moment he is less concerned with theory than with results, and if he cannot hold by all that Freud, for instance, has taught as to origins, he accepts Freudian mechanisms to explain the outcome of his own therapeutic efforts. Thus his summary is that in the majority of the psychoneuroses there are found losses of memory for strongly emotional incidents, and these he endeavours to awaken by getting his patient into a hypnoidal state in which he urges him to live the painful incident over again; emotion usually shows itself, and Dr. Culpin at once seeks to get this emotional revival into fullest consciousness, holding that in this way the symptoms are most likely to subside.

We are using no stereotyped formula in cordially recommending this little book to the physician; and we hope that, since the author states he has found much to learn in his study of psychotherapy, he will also have much to teach.

THE DEVELOPMENT OF THE HUMAN BODY.

A Manual of Human Embryology. Sixth edition. By J. PLAYFAIR MCMURRICH, A.M., Ph.D., LL.D. London: Henry Kimpton. 1920. With 230 illustrations. Pp. 501. 18s.

THIS is one of the small number of books of handy size dealing with the subject of human development, and the fact that it has reached its sixth issue during a comparatively short term of years is evidence that it is appreciated by students of this subject. The reason is not hard to find: the descriptions of the various processes of development are intelligible and straightforward, the illustrations are adequate, clear, and good, and the whole makes a compact little work which should certainly claim the student's attention. This present edition has undergone a certain amount of

revision, with the addition of some new figures among which we are glad to recognise those which illustrated Streeter's excellent work on the cranial sinuses. We confess, however, to some feeling of disappointment. The book leaves us with the impression that the subjects of some of its chapters might have been advanced further if the author had given less time to the investigation of German writers and more to the study of work produced in England. This thought arises early in perusal, when we read of maturation in the human ovum, but it applies also to other things, such, for example, as the peritoneal disposition and the formation of the heart. In this last connexion it is surely time to recognise also the absurdity of Born's diagram illustrating the mode of division of the heart. In thus hinting at what appear to us to be defects we do not do so with any wish to lessen appreciation of the book, but with a desire to see the best made of an excellent little work.

SYNOPTIC CHART OF CARDIAC EXAMINATION. Arranged by JOHN D. COMRIE, M.A., B.Sc., M.D., F.R.C.P.E. London: Balc, Sons, and Danielsson, Ltd. 1920. 4s. 6d.

THE chart consists of a stout piece of cardboard, on which is depicted a diagram of the chest, with the heart mapped out in situ. An inner sliding card worked by tapes indicates, through windows cut in the outer card, the chief physical signs of several forms of heart disease. A pamphlet attached to the back of the chart gives some further information. The idea is ingenious and the information, on the whole, accurate. While a dead chart can never replace the living body for teaching purposes, it may be that the one before us will help the young student to grasp the elements of a difficult subject.

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. Reprints. Vol. XXXIII. New York: The Rockefeller Institute. 1920. Pp. 608.

RESULTS of the investigations conducted at the Institute, or elsewhere under its grants, are first reported in a variety of journals and publications. The reports are then assembled serially in volumes designated "Studies," which appear serially at irregular intervals. Hence it occurs that for 1920 not a few of these publications in the present volume are marked, "Received for publication in 1918." Of the 53 papers included no fewer than 34 are concerned with pathology and bacteriology; 1 each with physiology and pharmacology, chemistry, and experimental surgery; 3 with experimental biology, all three being by the ever fertile and productive Jacques Loeb on amphoterie colloids; while 11 emanate from the hospital of the Institute. Amongst the papers on pathology eight are devoted to lymphoid tissue, including lymphocytosis induced by heat and lymphocytes in natural and induced cancer; others deal with resistance to sun's rays, and effects of X rays, effects of exposure to sun's rays, and effects of their direct effects on transplantable cancers in mice. Other communications deal with the susceptibility of the monkey to experimental poliomyelitis, with blood counts in poliomyelitis, and the persistence of the virus of the same disease in the nasopharynx. There is an account of a yeast medium for prolonging the viability of the meningococcus, an account of meningococci in the meninges amongst a civil Chinese population, and of the effects of carbonic acid in the cultivation of meningococcus. The action of chlorinated antiseptics on blood clot and of bile on the clotting time of blood itself are described. There is a paper dealing with the influence of ether and of hæmorrhage on the pressor effects of epinephrine, and one on the blood-pressure curve following an intraspinal injection of adrenalin. Amongst the hospital papers are two on Dakin's solution. E. Uhlenhuth has papers on parathyroids and calcium metabolism, on the thymus and amphibian metamorphosis, and on the relation between the thyroid gland, metamorphosis and growth, all with reference to amphibian larvæ. There are also short con-

tributions on experimental pneumonia, dysenteric bacilli, malarial infections, poisoning by mercuric chloride and uranium nitrate, aromatic amines, alveolar air, thermotropism in anopholes, and localisation of bacillus abortus in the bovine foetal membranes. This not complete enumeration will suffice to show the wide scope of the subjects which have occupied the attention of the investigators.

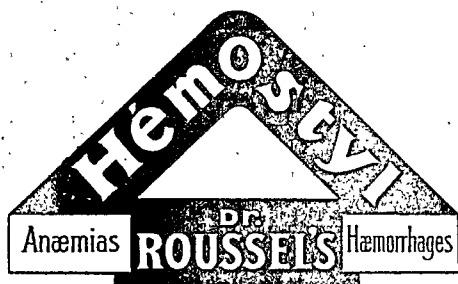
A COURSE OF PRACTICAL PHYSIOLOGY. Introductory to Physiology and Medicine. By G. A. BUCKMASTER, M.A., D.M., Professor of Physiology, University of Bristol; and H. R. B. HICKMAN, M.A., M.B., B.Ch. Bristol: John Wright and Sons, Ltd. 1920. Pp. 138. 5s.

THIS is an account of the course offered in the University of Bristol. Intentionally, no figures or diagrams are inserted, brief instructions only are given for those experiments and demonstrations which require personal assistance, and demonstrations given to the whole class—for example, on blood pressure or respiration—are omitted. The elementary course (pp. 1-44) describes the usual experiments on the frog's muscles, nerves, and heart, with some simple experiments on the dead mammalian heart, the dissection of the eyeball, and a description of the experiment of Mariotte (1668) and Scheiner's experiment (1650). The "advanced course" (pp. 46-111) has special reference to human physiology, and includes, amongst other matters, short directions for estimation of blood corpuscles, hæmoglobin, pulse-rate and efficiency of heart, tendon reflexes, colour sensations, reaction time, tendon reflexes, perception, and hearing; also instruction in the use of the spirometer, ergograph and photogram, and ophthalmoscope and perimetre. Some selected chemical methods (pp. 112-138) are described, including the determination of urea by urease, the estimation of uric acid, glucose in urine and polarimeter, albumin, ammonia, amino-acids, and blood in urine. Blood spectra and blood crystals are also described. Of modest dimensions and scope, this course is well balanced and not too elaborate or over-laden with details of experiments on the frog; the future work of the medical student in dealing with man is kept in the foreground. The book should prove most useful to the student when he begins clinical work.

AN EPITOME OF HYDROTHERAPY. By SIMON BARUCH, M.D., LL.D. London: W. B. Saunders Company, Ltd. 1920. Pp. 205. 10s.

THE position of water as liquid, solid, and vapour in materia medica is of primary importance, and it forms a most valuable therapeutic agent. Reliable textbooks on the subject of hydrotherapy are few, and many are so antique that one leaves them reposing on the top shelf of the library. Professor Baruch's latest contribution, in the form of an epitome, is well arranged and readable. The indications for hydrological methods of treatment and the manner of their application, from the wet pack and cold compress to the latest whirlpool bath, are clearly expressed. This is a book which every practitioner should read. It should be clearly understood that in this country much of this form of treatment is unscientifically applied and is not under medical direction and supervision; hence results much harm and discontent, in addition to adverse criticism to its value. America appreciates this valuable adjunct to her pharmacopæia, and this book may stimulate some interest in the subject here.

It is questionable whether the massage effect of the whirlpool bath is satisfactory. The maintenance of temperature is beneficial and it followed by properly applied manual massage is excellent in its results. Another form of bath, the sedative pool-bath, has been extensively used during the war. Observations on this are omitted in the section on treatment by sedative baths. The chapter on installations and that on sunstroke might, we think, have been curtailed a little. The information on the former subject is of more value to the architect than to the physician, and the latter is unnecessarily diffuse.



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LONDON: SATURDAY, NOVEMBER 13, 1920.

Hospital Principles and Statistics.

We report elsewhere the proceedings at a conference convened by the Federation of Medical and Allied Societies in the rooms of the Medical Society of London on Friday, Nov. 5th. The object of the meeting was to consider Clause 11 of the Ministry of Health (Miscellaneous Provisions) Bill, which clause no longer exists in its original form. The speakers ranged far and wide, though we should add that they did not depart from the real theme, for all of them discussed, from different standpoints, the principles to be observed if the hospitals of the country were to fulfil their position as centres for the prevention and cure of disease and for the promotion of medical science and education.

The position of the voluntary hospitals with such responsibilities before them, and with their notorious pecuniary plight, became the centre of the debate, and the concrete declaration by Lord KNUTSFORD that, unless money was found immediately, the great London Hospital, with which his name will ever be associated, must close at the beginning of next year, led to a resolution which may be very helpful in existing circumstances: The resolution was to the effect that the time has come when the British voluntary hospital system must be supplemented by State aid, and it included the suggestion that an orderly scheme of obtaining contributions from patients towards maintenance, and combined action between the voluntary hospitals and the Poor-law infirmaries should both be given a trial. The resolution, it will be seen, forms a programme for a wide field of effort and reconciles much divergent energy. Everyone knows the splendour of the work done by the voluntary hospitals, and everyone knows that the subscriptions raised by voluntary contributions in many cases no longer meet current expenses and in no cases leave anything for structural maintenance, improvements, and additions. Three sources of increased revenue for these hospitals are at once indicated by the resolution—namely, improvement in the methods whereby voluntary subscriptions are raised, State aid, and municipal aid. The resolution suggests not that one source is better than any of the others or than any combination of the others, but that all ought to be utilised. The reports of Sir NAPIER BURNETT, as, Director of Hospital Service for the Red Cross and St. John, have demonstrated that the plans under which voluntary subscriptions to hospitals are collected are chaotic, inadequate, and old-fashioned in too many cases, and it follows that more money can be expected if heed is paid to the methods of collecting. The State has made grants and has promised further grants to the voluntary hospitals, although the Treasury can only find gradually the money to carry out that central and co-ordinate scheme which it will be the responsibility of the Ministry of Health later to furnish. Many municipalities are willing, it is believed, to organise the support of hospitals in their own areas, but many ratepayers in those areas, it is known, resent very strongly the proceeding. Where the locality is suitable, and where

the population is willing, there can be no objection to municipal support of hospitals. But it is absolutely necessary that these institutions, whether large or small, whether State- or rate-aided, or dependent upon the generosity of the rich or the subscriptions of the sick, should carry out their great future, as the basis upon which preventive medicine is founded, as the source of the best therapeutics, and as the home of progressive learning. And this can only happen if the medical profession, composed of the executive officers of medicine, State or private, preventive or curative, general or special, is called into counsel by hospital authorities, and is treated as a partner in an undertaking and not as a servant of an administration. And this is a broad reading of many of the speeches delivered, as well as of the resolutions passed at the interesting conference last week.

On the same afternoon that the conference was taking place a statement dealing with hospital statistics, prepared by Mr. H. R. MAYNARD for King Edward's Hospital Fund for London,¹ was published, and furnished valuable details as to the position of the London voluntary hospitals. The statement is founded on the published accounts of 109 hospitals, the total being made up as follows: 11 general with medical schools and with an average of over 100 beds in daily occupation, 8 general without medical schools and with an average of over 100 beds in daily occupation, 13 smaller general, 2 hospitals for tuberculous patients, 5 for women, 6 for children, 5 for ophthalmic patients, 3 for cases of epilepsy and paralysis, 14 cottage hospitals, 8 lying-in, and 34 unclassified institutions. These hospitals, taken together with St. Bartholomew's Hospital and the Cancer Hospital, provide a total of 9988 beds in average daily occupation in 1919, the total number of in-patients being 146,585 and of out-patients 1,318,915. The features affecting the London hospitals during the year 1919 are the rise in prices, salaries, and wages, and the loss of payment from naval and military patients. The total ordinary expenditure during the year, including maintenance, administration, and rent, rates, and taxes, but excluding capital expenditure, interest on borrowed money, and contributions to the maintenance of convalescent homes and country branches, amounted to £2,137,755. The receipts from the authorities in aid of the expenditure on naval and military patients amounted to £69,716, or 3·26 per cent. of the total ordinary expenditure, and the balance of £2,068,039 had to be met out of the normal sources of hospital revenue. As the total ordinary expenditure in 1913 was £1,142,938, the London voluntary hospitals had in 1919 to provide out of normal sources, as compared with the year before the war, an additional working expenditure of £925,101, or an increase of 80·97 per cent. The honorary secretaries of King Edward's Fund, in presenting the statement of statistics to the PRINCE OF WALES, the President of the Fund, state that the corresponding increase in 1915 was only about 4 per cent., in 1916 13 per cent., in 1917 27 per cent., and in 1918 40·98 per cent. Comparisons of cost per bed between the current year and the previous year are omitted from the statement, but the average cost of each group of hospitals has been prepared, and will be of great assistance to hospital managers in

¹ King Edward's Hospital Fund for London. Statistical Report of the Ordinary Expenditure of 109 London Hospitals for the Year 1919. Spottiswoode, Ballantyne, and Co., Ltd., 1, New Street-square, E.C. 4. 1s. 6d.

controlling expenditure. The figures record the worst; they deal with London, where the position has always been especially difficult; and the worst does not appear irremediable. But far greater public interest in the hospitals is wanted, not only in London, but throughout the kingdom. If the general public would subscribe and would organise their levies, a surprising relief of financial stress would follow. The Federation of Medical and Allied Societies might do well to hold further meetings, for the recent convention was very instructive, and the more people who understand the questions at issue the more numerous will be the supporters of the voluntary system.

The Treatment of Diphtheria Carriers.

THE "carrier" problem in infectious disease is one of the most difficult and at the same time one of the most urgent questions from the point of view of the hygienist, the bacteriologist, and the medical practitioner. It is incidentally one of great interest to the public, although it may be doubted whether that interest has yet been sufficiently aroused. Nor is the time quite ripe for insisting upon public education, since it must be confessed that efficient methods of discovering the carriers and of rendering them innocuous have yet to be evolved. For these reasons any practical contribution to the question in regard to any of the infectious diseases is to be welcomed, and we draw our readers' attention to a paper in this issue of THE LANCET by Dr. A. REITH FRASER and Dr. A. G. B. DUNCAN, of Aberdeen, on the treatment of diphtheria carriers with detoxicated Klebs-Löffler vaccine.

The authors define a carrier as one "who harbours virulent pathogenic organisms, and is capable of infecting others, though not himself exhibiting any of the clinical signs of the disease." They distinguish between the so-called "positive throat,"—which are practically cases of delayed resolution, where the bacilli persist for periods up to three months—and the true carrier, where the bacilli remain for long periods with unabated virulence in spite of energetic methods of disinfection. They point out that in the "positive" throat the bacilli may disappear spontaneously, or after energetic treatment, and that a few doses of stock diphtheria vaccine readily cures them, as shown by Dr. J. L. BROWNIE. Dr. FRASER and Dr. DUNCAN suggest that a carrier possesses a certain degree of immunity sufficient to inhibit the organisms but quite insufficient to exterminate them, an assumption which seems warranted by the facts. They are of opinion that many vaccines at present in use are ineffective or incompletely effective because of a high endotoxin content contingent on their method of preparation, this toxic factor necessarily rendering a small dose obligatory where a large dose is essential. They have therefore employed detoxicated vaccines prepared by Dr. D. THOMSON's method, using very large doses, with results so distinctly encouraging that they may serve to stimulate further research on the diphtheria carrier. They found that these vaccines caused degeneration of the bacilli and their eventual disappearance in carriers of several years' standing. They record three cases in detail, with the doses given and with the pathologists' reports on the organisms present, showing the change from virulent to non-virulent bacilli and then their disappearance.

The quantities of vaccine used are noteworthy, since in one case they worked up from 4000 to 350,000 millions, the latter dose being 3.5 c.cm. in volume. Even with these enormous doses no reaction, general or local, developed.

They regard these vaccines as valuable in the treatment of contacts, convalescents, and carriers, and also in the established disease in which they advise their use in conjunction with antitoxin. For prophylactic purposes they advise doses of 200 to 8000 millions in infants and 8000 to 200,000 millions in adults. It is obvious that no critical judgment of the value of this method can be formed on the small number of cases here recorded, but they were all cases of long standing, and in each case there was an abnormal state of the nose or naso-pharynx, an association favourable to the carrier condition. The success of the treatment in the circumstances is sufficiently striking to warrant extended trials.

The Kidwelly Poisoning Case.

THE verdict in this sordid but sensational case is the one that had been foreseen as inevitable by all medical men as soon as the expert evidence for the Crown that the first Mrs. GREENWOOD had been fatally poisoned by arsenic was countered by medical assurances to the contrary. Similarly the public had agreed on the probable result when the daughter of the victim told the court that she had also partaken of the poisoned cup. The elements of doubt thus introduced into a case where the utmost penalty of the law would follow an adverse verdict sufficed, as they were bound to suffice, to determine the issue, and a unanimous verdict of acquittal set the seal upon general prophecy. The only medical interest in the trial is due to the fact that the differing judgments, of medical witnesses in such cases have been over and over again commented upon as a slur on medical science. Thoughtful people should view the matter in another light. Medical science is progressive and knowledge can only progress by inquiry. As inquiry is multiplied more things pass from the realm of theory, or from the more dangerous realm of deduction, to the realm of positive fact, and upon facts, accepted as facts by the medical profession, members of that profession do not disagree. Medical experts called by the Crown (who cannot be described fairly as witnesses for the defence should and medical experts called by the defence should certainly agree upon most salient points in discussing poisoning by arsenic, for the symptoms are classic, and the fatal doses more than approximately known. In the GREENWOOD case no differences of opinion worth mentioning were expressed upon these points. But complete concord could not be expected when the other circumstances were under discussion, while none of the expert witnesses was in attendance on the patient or personally aware of the symptoms manifested.

The jury did not, and could not, receive in these circumstances any uncompromising medical direction, while the verdict has removed the case from the scope of scientific having regard to the conviction resulted, especially having regard to the general weakness of the case for the Crown, the differences between the expert witnesses would have been the subject of debate in the interests of the accused. For the future guidance of counsel and of juries such debates may be useful, but it is our experience that authoritative voices are rarely heard in the press on these occasions.

Annotations.

"Ne quid nimirum."

THE REGIONAL MEDICAL STAFF OF THE MINISTRY OF HEALTH.

THE scheme for the establishment of referee consultants has just been launched by circulars recently issued by the Ministry of Health to insurance practitioners and to the Approved Societies. The country is to be divided into 27 regions, each with a regional medical officer acting in four divisions under a divisional medical officer. We gave the names of the regional medical officers appointed in our issue of July 17th (p. 147) and need only add here the names of Dr. F. J. Blackley (Bristol), Dr. F. B. Thornton (Reigate), Dr. R. T. Worthington (Lowestoft), and Dr. E. Parry Evans (Llantwit Vardre), who have just been appointed to fill vacancies which have arisen through inability of officers originally nominated to take up the duties of their posts. Each division has a divisional office with subsidiary offices in the various regions. The principal offices are in Manchester, York, and London. In Wales there are three regions acting for the office of the Ministry of Health at Cardiff. The various regional offices are set out in the appendix of the circular. The objects of the scheme may be summarised as two-fold: first, to assist the societies in cases of prolonged incapacity; and, second, to help practitioners by consultation and advice in difficult cases. There are other duties in relation to the Insurance Medical Service in connexion with certification and records, to which we have already made reference in these columns. It is interesting to note that the duties of the new medical officers will not be confined to the sphere of National Insurance, but they will be employed for such other purposes in connexion with any part of the work of the Ministry of Health as may from time to time be found desirable. With regard to the advice of specialists, this is only available at the present stage for the assistance of the referees in deciding what advice he should give the Approved Society or to the practitioner, as the case may be. The functions of the new medical officers are purely advisory. They will not interfere in any way with the treatment of the patient or the responsibility of the practitioner for the welfare of his patient. The new service depends a great deal for its success on the hearty co-operation of practitioners with the regional medical officers. The medical officers will be easily accessible and will welcome inquiries from practitioners on any points of doubt or difficulty occurring in their work in which it is thought that they can give assistance. It is to remove these difficulties that the new service has been set up. If practitioners avail themselves of the facilities afforded, there should be a marked improvement in the efficiency of medical service. This is an important step, but is only a step in the building up of an adequate service. The proper provision of a consultant service with adequate hospital accommodation and laboratory facilities are the next steps to be taken. Until these are provided the Medical Service cannot be said to be complete nor the insurance practitioner to be fully efficient.

A COLLECTION OF NASAL ANATOMY.

THE work of the late Professor A. Onodi, of Budapest, as set out in a treatise, *The Anatomy of the Nose and its Accessory Sinuses*, was made known in this country as far back as 1894 by Sir St. Clair Thomson in his "Atlas of Nasal Anatomy." Onodi's later and important investigations on the relationship of the optic nerve to the accessory sinuses, and of these to the brain, were also deemed worthy of an English translation. The beautiful sections and dissections on which Onodi's publications were founded were recently brought to this country for disposal, when Professor Arthur Keith described the collection as the finest on this subject in the world, desiring it for the Hunterian

Museum of the Royal College of Surgeons of England, where it would form a worthy complement to the Toynbee and Cheate collections on the anatomy of the ear. As negotiations were proceeding slowly, and there was some risk of the collection being withdrawn from London, it is fortunate that Sir St. Clair Thomson and Mr. Philip Franklin have been able to purchase it for a moderate sum, keeping it entire and retaining it in this country. We feel that the Hunterian Museum is its natural destination, and to this the present owners are desirous to hand it for the sum which they paid for it. Only £300 are required, and at their first meeting of the session the laryngologists of the Royal Society of Medicine collected quite a quarter of this sum. But the collection is of almost equal importance to the ophthalmologist, the otologist, and the general surgeon, particularly to the surgeon dealing with the head and brain. We are therefore glad to hear that the President of the Royal Society of Medicine, Sir John Bland-Sutton, is chairman of a committee entrusted with the task of collecting at least £300. More than this sum is wanted, as there are no less than 450 specimens, and it will cost, in addition, between £500 and £700 to satisfactorily mount, label, and catalogue the specimens in the College Museum. The President of the Sections of Surgery (Mr. Walter Spencer), Ophthalmology (Dr. James Taylor), Otology (Sir Charles Ballance), Laryngology (Dr. Jobson Horne), and the Royal College of Surgeons (Mr. H. J. Waring and Professor Keith), together with Sir St. Clair Thomson, are members of this Committee, and subscriptions can be sent at once to the honorary secretary, Mr. Philip Franklin, at 1, Wimpole-street, London, W. There is no collection of nasal anatomy in the world which can compare with Onodi's in variety, beauty, or value, and we commend the matter to our readers' attention.

THE EDUCATION OF A SURGEON UNDER THOMAS VICARY.

IN the second Vicary lecture, delivered on Nov. 11th at the Royal College of Surgeons of England, Sir D'Arcy Power drew a parallel between the unsettled conditions after the Wars of the Roses and after the Great War. The same need for reconstruction in the medical profession was apparently felt then as is being felt now. Two bodies of surgeons had till then existed in London. The one, a small guild of surgeons proper, mostly attached to the suites of the higher nobility; the other, a guild of barbers whose members looked after the surgical needs of the citizens. In war-time the surgeons served with their lords, while the barber-surgeons remained at home, accumulated wealth, and became a flourishing company. When towards the end of the fifteenth century the impoverished state of the nobility brought lean times to the surgeons they allied themselves with the prosperous Company of Barbers, and in 1540 a United Company of Barber Surgeons was ratified by Act of Parliament. The guild of surgeons had always endeavoured to educate their members and to test their knowledge by examination, while the barbers admitted persons to their freedom after a prolonged period of apprenticeship; by a combination of the two methods a new system of surgical education was introduced. Under Thomas Vicary, the first Master of the United Company of Barber Surgeons, the Company developed a comprehensive system of education. No person could practise surgery in the City of London or within seven miles thereof without passing the examination set by the Company. The bodies of four criminals were obtained every year for dissection; thus anatomy as well as surgery became the basis of examination, and to this there was added such pathology as could be learnt from English translations of Galen's works.

One of the first acts of the Company was to appoint a lecturer on anatomy with four demonstrators under him. Dr. John Calus served for nearly 20 years in this capacity, and so inspiring was his teaching that the Company's anatomical department remained the best in the kingdom for nearly 200 years. The teaching of surgery and pathology was less successful. Both were

taught by lectures at which attendance of every member of the Company was compulsory; clinical teaching was discountenanced. The formal surgical lecture had always been a part of the teaching of the guild of surgeons, and it was undertaken by each member in turn, beginning with "the ancientest" surgeon. After a time the Company decided to abolish this form of lecture and to establish a paid post like that of the lecturer in anatomy, with the stipulation that the lecturer must be paid out of the private pockets of the surgeons who ought to have lectured. The teaching of pathology was still more unsatisfactory, being allotted sometimes to the lecturer on anatomy and sometimes to the lecturer on surgery. Sir D'Arcy Power showed the text-books in current use in the middle of the sixteenth century:—Realdus Columbus for anatomy; Guydo's Questions, John of Vigo, and Tagaultius for surgery; Oribasius's Commentaries on the Aphorisms of Hippocrates and Cains's edition of the books of Galen for pathology; Galen's works, and a little later those of Banester, Clowes, and Bullen. The eternal type of student who likes to get his knowledge in a condensed form was catered for by the Tables of Horatius Morus.

The examination for the licence was conducted by eight specially appointed examiners, of whom four were present at each examination. Rejections were by no means infrequent, and according to the knowledge displayed the candidate was granted a licence for a longer or shorter period, a permanent licence being issued only after a further examination. Later the second examination became optional, being replaced by "The Grand Diploma," which was rarely demanded, and corresponded to the present F.R.C.S., as it was required only by those who intended to devote themselves entirely to the practice of surgery. Apprentices who did not propose to practise in London were not obliged to submit themselves to examination, whereas "foreign surgeons" licensed elsewhere had to pass a nominal test, often too easy, before admission to the Company. This custom frequently brought the Company into grave disrepute. A system of compulsory consultation perhaps formed some safeguard to the public from malpraxis. If a surgeon had a patient in danger of death or likely to be permanently incapacitated he was bound before the third dressing to call in the Master and Wardens of the United Company, who were sworn to perform this duty without exacting a fee. The rule gradually fell into abeyance as the population of London increased. Sir D'Arcy Power gave pen pictures of the band of sixteenth-century reformers—Vicary, Gale, and Clowes. Halle, Banester, and Read—who strove to oust the quacks by improving the practice of the surgeons; and he concluded with a tribute of praise to the Barbers' Company, the members of which had acted as the business partners of the surgeons when their fortunes were at a very low ebb. By their union with the barbers the surgeons were given time to educate themselves and to extend their influence until they became an important profession.

RETROPERITONEAL PERIRENAL LIPOMAS.

ACCORDING to Dr. Walter R. Holmes,¹ of Atlanta, who reports a case in a woman, aged 43, from whom a retroperitoneal lipoma weighing 25 lb. was successfully removed, tumours of this kind are probably the largest solid abdominal new growths. Cases have been reported in which the tumour weighed as much as 70 lb. Of 113 cases collected by Lecène in 1919 88 were in women and 25 in men, so that 75 per cent. of these tumours occur in the female sex. The ages at which they are found range from 1 to 70 years, but the largest number are met with between 40 and 50. The symptoms connected with these growths are remarkably few in spite of their large size, and are referable to pressure. The tumour may press upon the inferior vena cava, causing oedema of the extremities; on the portal system, with ascites and dilatation of the subcutaneous veins of the abdominal wall; and on the

spermatic veins, with the formation of varicocele. When the nerve-trunks are affected pain may become a prominent feature. Dyspnoea may arise from pressure on the diaphragm. Lastly, digestive symptoms may result, consisting in loss of appetite, distension, diarrhoea, or constipation. Intestinal obstruction is rare owing to the tumour developing behind the peritoneum and not in direct contact with the abdominal viscera. Owing to the difficulty of the diagnosis the nature of the tumour is usually not recognised till operation or autopsy. The presence of a large abdominal tumour of slow growth, with a smooth rounded surface, soft or semi-fluctuating, without mobility, and extending into the flanks, is suggestive. A tympanitic area corresponding to the distended colon running across the top of the mass may indicate its retroperitoneal character. Retroperitoneal perirenal lipoma has been most frequently mistaken for an ovarian cyst, but it has also been confused with almost all abdominal tumours, as well as with extra-uterine pregnancy. Dr. Holmes emphasises the importance of making a cystoscopic examination in all suspected cases, so as to exclude malignant disease of the kidney. Nephrectomy has been found necessary in 48 of the cases on record, including that reported by Dr. Holmes. The prognosis is grave. Removal of the tumour is difficult, owing to its close relationship to important structures, and the mortality after operation has been 20 per cent. Recurrences following removal are frequent and show a tendency to malignant degeneration.

ROUTINE STUDY OF MENTAL DEFICIENCY.

WITH the resumption of municipal activities on the termination of the war the Acts dealing with the care of the mentally defective are gradually coming into full operation. Before a defective can be dealt with either by way of a special school, or by being placed under guardianship or in an institution, medical certificates have to be given by medical officers specially approved for the purpose, by the Board of Education in the case of school children or by the local control authority under the Mental Deficiency Act in the case of others. Recently the Board has required some evidence of experience as a precedent to recognition. The practice of local authorities has varied, some recognising all medical practitioners, others demanding proof of competence. The latter is clearly the more satisfactory procedure. Difficulty, however, arises in regard to the nature of the evidence required. For senior practitioners the fact that they have been engaged in such specialised work is adequate; for younger practitioners some special form of certificate or diploma would be desirable. Two forms are at present coming into purview; the diplomas in psychological medicine now granted by several universities and other licensing bodies, as the English Conjoint Board, and certificates of attendance at special short courses of instruction issued by the London University. Of these, the former naturally covers the more comprehensive field of studies, but presents the disadvantage of requiring a period of attendance at suitable institutions, and implies, if it does not formally require, attendance at courses of special lectures, demonstrations, and practical work extending over several months. Such a course includes a study of the anatomy and physiology of the nervous system, of psychology and neurology, as well as of mental defects and disorders. For a diploma of this kind less could not reasonably be required, but the time involved is more than a medical officer in active work can spare, unless he lives within easy access and is able to secure free afternoons for the purpose. And this medical officers attached to the school medical service or the junior branches of the public health services are unable to do. In consequence they are bound to fall back on the short course.

Two such courses, consisting each of some eight lectures accompanied by demonstration of cases, explanations of forms and certificates, and visits to schools and institutions for the defective, have just been held by the University of London in conjunction with the Central Association for the Care of the Mentally Defective. These have been attended by nearly 150

¹ Journal of the American Medical Association, Oct. 16th, 1920.

medical officers, and have proved popular. From an educational standpoint a course confined to a week involves not only the strict limitation of the subject matter to mental deficiency but the assumption that the students are familiar with psychological and neurological methods. Experience unfortunately has shown that this expectation is not entirely justified, and it is evident that some extension is inevitable to allow of preliminary lectures or demonstrations. How to obtain the necessary leave of absence from duty for medical officers who wish to attend, bearing in mind that the strength of the staff gives little margin of elasticity, is a serious question. It may be this could be managed by holding the courses either immediately before or immediately after school holidays, so that part of them might come during the school vacation. A course devised to give some laboratory instruction, demonstrations of selected cases, opportunities for individual testing of cases by the students, followed by visits to schools or institutions to see these methods in actual practice, would have a high educational value, and it is to be hoped that the organisers of these classes will be able to make the necessary arrangements. At the same time it is desirable that a strong public opinion should support the demand of the medical officers for such post-graduate or revision courses, since at present study-leave is still difficult to obtain, whereas it should be an integral part of every appointment. A fortnight or three weeks' allowance for this purpose, or even more if required, would soon be repaid financially by reduction in the number of cases of backward children sent to special schools without the cause of their backwardness being ascertained and remedied, and by the effective education of some of those now deemed ineducable. To the community at large it is important that its really defective members should be either segregated or efficiently supervised to prevent them from spending much of their later life in gaols or Poor-law institutions—with intervals of predatory wanderings, or, what is worse still, from improvident marriages or illegitimate unions calculated to increase the numbers of the socially inefficient. Lengthening of the course beyond the week is essential if full use is to be made of the visits to schools and medical examinations, since without knowledge of the methods in use on the part of the student the time of the demonstrating medical officer is taken up in showing the nature of the tests he employs rather than in discussing the application of the results to the individual case. There is reason to think that, if a fortnight of continuous study were available, the same ground could be covered on the clinical side at least as in the courses for the diploma, though the necessary time for reflection and personal application would still be inferior. Any efforts to extend this educational provision are, of course, dependent on the willingness of local authorities to make it possible for their officers to attend and to sanction some disturbance of school routine.

WHITE SETTLEMENT OF THE AUSTRALIAN TROPICS.

OUR Australian correspondent gave some account in THE LANCET of Oct. 16th (p. 815) of the Australasian Medical Congress held at Brisbane towards the end of August last, noting that the principal subject for discussion was the question of the possibility of the permanent occupation of tropical Australia by a healthy indigenous white race and the conditions conducive or essential to such occupation. After a very full discussion the following resolution drafted by a subcommittee was adopted as the deliberate view of the Congress:—

After mature consideration of sources of information embodying the results of long and varied professional experience and observation in the Australian tropics, the Congress is unable to find anything pointing to the existence of inherent or insuperable obstacles in the way of the permanent occupation of tropical Australia by a healthy indigenous white race. It considers that the whole question of successful development and settlement of tropical Australia by white races is fundamentally a question of applied public health in the modern sense, such as has been demonstrated and practised with success amongst civil

populations, under far more difficult conditions, by the American authorities in the Philippines prior to the Great War, and throughout the military forces of every allied Power during that war. It considers that the absence of semi-civilised coloured peoples in Northern Australia simplifies the problem very greatly. But it desires to emphasise in the strongest manner that any considerable extension of population and settlement under the existing loose conditions of sanitary administration and sanitary practice, using these terms in their modern wider sense, which prevail at the present time in tropical Australia, cannot hope for lasting success and cannot fail to result in ultimate disaster. The Congress recognises that a large amount of work still requires to be done in working out the practical details of any scheme of settlement, but it considers that it presents no difficulties beyond those of organisation, staff, time, and money. It realises that a great national question is involved, but it is unable to discern any obstacles which cannot be overcome by earnest and skilled application of the principles of statecraft.

To help in achieving this very desirable end the Congress resolved that the Australian Institute of Tropical Diseases should concern itself more directly with the problems of health in tropical Australia, that the Federal Government should be asked to appoint a special investigator for the collection of statistical data, and that some system should be organised for the dissemination of exact knowledge on the requirements, personal and communal, essential to healthy life in the tropics. Finally it was suggested that legislation should be introduced to deal with the extensive consumption of alcohol, the planning of towns and houses, the provision for recreation, the suitable hours for work in schools and factories, the provision for readily available periodical change from the coast to the hinterland, and the encouragement of industries specially suitable for tropical Australia. Australian medicine is clearly expressing its determination to make all parts of its vast area fit for white settlement.

BIOMETRICS AND THE PROCATARTIC CAUSES OF TUBERCULOSIS.

It is a highly satisfactory sign of the times that several recent publications on tuberculosis emphasise the importance of the procatartic or predisposing causes of this disease as revealed by modern research. Latterly we have studied tuberculosis in terms of bacteriology rather than of biology, sociology, and heredity, and the half truth—no tuberculosis without the tubercle bacillus—has obscured our vision. For 40 years we have been peering down the microscope at little blobs of carbol-fuchsin with the docile and misguided concentration of a hen with its beak on a chalk line. It may be that in guinea-pigs and savages the tubercle bacillus behaves exactly as the bacteriologist would expect it to do, but in civilised communities we have yet to learn why, when two persons are equally exposed to infection with the tubercle bacillus, one is taken and the other left. We have yet to discover why the first-born are so comparatively susceptible to tuberculosis, and why the pure-bred Jew is comparatively immune. In Appendix V. to the first annual report of the chief medical officer to the Ministry of Health, Dr. M. Greenwood reviews the epidemiology of pulmonary tuberculosis and the work of Dr. J. Brownlee, Professor K. Pearson, Miss Hilda Woods, Dr. A. E. Tebb, Miss C. M. Thompson, Dr. Leonard Hill, and others. The investigations of many of these workers are already so well known that they need not be summarised here, but, in passing, some of the curious and apparently contradictory findings of statistical analyses may be mentioned. Miss Thompson's coefficients, for example, show the paradox that in certain localities the worse the home conditions the lower the death-rate from phthisis in adolescents. But such a finding does not necessarily imply that bad housing is good for adolescents, but only that in the given instances it has been correlated with something else which is good for them. As Dr. Greenwood says: "Spending one's boyhood on the tail of a van may be a very bad preparation for the economic future; but it may be a good thing for one's health as a boy". It is also interesting that, in certain occupations, the female death-rate from tuberculosis is highly correlated

CROWN GALL AND CANCER.

with the death-rate from all other causes in women, but there is no such substantial correlation in men. Again, the male death-rate from tuberculosis is highly correlated with the index of overcrowding, the female death-rate is not so correlated. It is not so much the fault of the biometrician and his methods as of the lack of reliable data that the results of this line of investigation are often suggestive rather than final. But already they show that the ancient theories of innate and acquired predisposing factors were intrinsically sound. The oblivion which overtook these older theories was just, since in their development speculation and merely formal logic had too prominent a share. Referring to the problems of heredity in connexion with tuberculosis, Dr. Greenwood points out that the investigations of Pearson and his school have revealed the tendency to contract phthisis to be heritable in the same way and to the same extent as the determinants of stature or other bodily dimensions, and even of mental or moral characteristics. And it would be expected that "general health" would be heritable, the parents of more than average robustness begetting children of better quality than parents of inferior physique. In providing quantitative verifications of theories dealing with heredity and evolution the English biometric school has been met with a certain amount of hostility, part of which, in Dr. Greenwood's opinion, is due to "a repugnance most feel to admit that any important element of national hygiene is either uncontrollable or only to be controlled by methods alien to the temper of a modern State." There is another explanation for this hostility: we do not like, and we certainly distrust, what we do not understand. Like every new science, that biometrician the following lines may seem a gom of lucidity:—

—e.g., the correlation between the death-rate from tuberculosis and the percentage employed in factories in the table is not the value directly computed by the correlation of the two variables, but the residual value after allowance, viz., correlations of these two with the other variables, viz., percentage overcrowded and death-rate from other diseases. But to some medical readers this passage will be a trifle, or more, obscure, and they may prefer the more tangible evidence of "something on a plate." We cannot, however, make great progress without statistics, and as Dr. Larrason Brown said in the course of the American Climatological and Clinical Association this year, "All scientific experiments are statistical arguments in favour of, or in opposition to, certain inductions or deductions."

CROWN GALL AND CANCER.

In the current (July) number of the *Journal of Cancer Research*, Messrs. Isaac Levine and Michael Levine communicate their observations on crown gall. In 1907 Dr. Erwin F. Smith showed that this tumour-like disease of plants could be produced artificially by an inoculation of a normal plant with a pure culture of a bacillus which he called *Bacterium tumefaciens*. In the present paper Messrs. Levine and Levine confirm his observations. But they differ widely from Dr. Smith as to the interpretation of these facts. Dr. Smith held that crown gall is practically identical biologically with animal and human cancer. And since crown gall is produced by a bacterium and various types of plant structures may be found in a crown gall, he concluded originally "that human cancer must be due to a parasite and that one parasite may well be due to a parasite and diverse forms." But there are obvious differences in the structures and functions of must be taken into account in order to arrive at a correct understanding of the mechanism of the formation of crown galls. Animal tissues respond to injury by a protective mechanism—namely, the process of inflammation—which, if successful, is followed by a process of repair. In a plant, obviously, a process of inflammation cannot occur and protection is afforded by a new formation of cells, so that protection and repair are

merged into one process. Now most crown galls, as a rule, do not invade and destroy the tissue in which they grow or affect in any way the general welfare of the plant. This type of crown gall is merely a protective benign cell proliferation. When small they correspond to a granuloma or scar. Larger crown galls are more analogous to a callus or to a cheloid in the human subject.

Occasionally, however, these crown galls develop true malignancy. They destroy the tissue in which they grow and even show metastasis formation, so that the whole plant is dwarfed or even destroyed. This condition is rare, but, according to Messrs. Levine and Levine, it is undoubtedly quite analogous to animal cancer. The conclusions at which Messrs. Levine and Levine arrive are best stated in their own words:—

"When two plants of the same size, the same age, growing in the same soil under identical conditions of heat, light, moisture, and nutrition, are inoculated in the same regions with the same quantity of an identical culture of *Bacterium tumefaciens*, and there develops in one plant a small, benign, wart-like structure and in the other a large malignant tumour which may destroy the plant, it is difficult to conceive that the same micro-organism, and only the possible explanation of the phenomenon lies in the fact that in the second plant, for some unknown reason, the cell proliferation, which began only as a protection against the bacterial invasion and apparently ceased when the bacteria were rendered harmless, suddenly received an impetus for limitless proliferation. It seems, then, that the first impetus to the cell proliferation and formation of a benign crown gall may be caused by the protective or inflammatory benign cell formation of this protective or inflammatory benign cell proliferation into a malignant tumour is due, as in every type of animal and human cancer, to some mechanism within the organism of the host, independent of the micro-organisms, the nature of which is unknown."

It is noteworthy that this view is very similar to that recently expressed in our columns (Oct. 2nd) by Dr. Alexander Paine, whose conclusions were derived chiefly from a study of human mammary cancer. The phenomenon is also strikingly similar to the experimental production of cancer in animals, by subjecting susceptible cells to a process of chronic irritation such as painting with tar or feeding with spiroptera. Great credit is due to Dr. Smith for having initiated and persisted in the study of this condition in plants, even although the far-reaching generalisations which he drew originally from his observations cannot be accepted. In fact, his most recent paper entitled "Production of Tumours in the Absence of Parasites" shows him to have reached by continued experimental observation very much the same position as outlined above, although he still adheres to the view that crown gall is analogous to all the types of human cancer. It is an unexpected ending—if it be the ending—to the controversy about the parasitic aetiology of cancer, if cancer, instead of being a parasitic disease, should be looked upon as an escape of the cell from the parasite.

VOCATIONAL GUIDANCE AND SELECTION.

At the recent Conference of the Association for the Advancement of Education in Industry and Commerce, held at the University of London, South Kensington, a discussion upon the Use of Psychological Tests was opened by Dr. C. S. Myers. Dr. Myers pointed out that such tests were devised for two different purposes—for obtaining the right individual for a given work and for obtaining the right work for a given individual—and that they were applicable to work either of an educational or vocational character. A person might be advised on the basis of these tests to take up a vocation of a certain kind: this amounted to vocational guidance. Or a person might be chosen on the basis of a certain tests as best fitted for a vocation of a certain kind; this involved vocational selection. Dr. Myers indicated the two principles underlying the various kinds of vocational tests. Some tests were merely performance tests—e.g., tests of assembling, type-writing, &c. Others were established after analysing

¹ Archives of Dermatology and Syphilis, vol. II, August, 1920, p. 175.

the work into its special psychological characters. For example, the work at a telephone exchange involved keenness of hearing, good powers of interpreting indistinctly heard words, memory for words and numbers, speed and accuracy of reaction. Tests could be devised to estimate such powers and the degree of success at them was first correlated with the degree of known efficiency at the vocation in question. According to the degree of such correlation, these tests were then discarded or weighted before being applied for vocational guidance and selection. Dr. Myers gave various illustrations of the proved value of psychological tests.

NARCOLEPSY.

AMONG the morbid states allied to that of encephalitis lethargica is the condition first described by Gélinaud in 1881 as "la narcolepsie," who considered it a neurosis characterised by an imperious desire to sleep, the slumber being usually of short duration. Later authors have used the term to include all states of paroxysmal sleep. "An attack of narcolepsy," says Professor Achard, "commences suddenly, seizing the patient in the middle of a meal or even while his brain is actively engaged in work. A doctor, under the care of Robin, fell asleep while walking. One of Féré's patients used to fall asleep while standing so soon as he leaned against a piece of furniture. Sometimes patients fall to the ground as a result of the sleeping attack. The muscles retain their tonus, though without contraction, the eyes are closed, sensitivity is greatly increased; the attack may last from a few seconds to some hours and the patient is unaware on recovery of what has taken place during sleep." Nutritional disturbances play an important part in the pathogenesis of this condition. It is associated with such diseases of the liver as alcoholic cirrhosis and gall-stones. It bears some relation to hypothyroidism and renal disease. Hysterical narcolepsy is more akin to normal sleep and may persist for a much longer period. There is recorded the case of a woman of 25 who lived in Thenelles, a little village in the Alsace, and whose sleep persisted through several years.

MEDICINE AND THE BAR.

Sir Richard Atkin, in his Presidential address at the recent meeting of the Medico-Legal Society, dealt ably with the bringing together of the medical and legal professions in the administration of justice. He referred to medical jurisprudence as the large body of medical and surgical knowledge applicable to the elucidation of issues determined in courts of law, and commented on the frequency with which doctors are called upon to give evidence. It was painful, he said, to see a medical man sometimes defeated on his own ground by a member of another profession who happened to have a special and perhaps very recently acquired knowledge of the subject; similarly, it was distressing to see a young man, possibly entrusted with a brief for the first time, incapable of making his point against the defence of an expert medical witness. The tendency now was for medical evidence to become more and more prominent in the trial of certain issues; the effect of physical conditions upon conduct was more emphasised, and motives were expressed in terms of pathology. In criminal law offences against the person frequently necessitated medical evidence. The judge tended to regard the medical man not as an advocate of either side, but as an officer of justice there to help the court in the elucidation of truth. In the instance of murder, he said, it was only occasionally that doubt arose which could be solved by medical evidence, as only the motive of the crime was usually in question; but in almost any murder case the question of insanity might be put to a practitioner by the prisoner's counsel. With regard to charges of wounding, which were very numerous, the proof of intention of causing grievous bodily harm was largely dependent upon medical evidence; in this connexion, too, arose the vexed question

of the state of mind induced by drunkenness, in which condition a large percentage of these crimes were committed. The most difficult class of cases in which medical men must appear were charges of rape and general sexual offences. The particular issue of virginity was known to be one of uncertainty, and great injustice might be inflicted either upon complainant or defendant; the medical witness should go no further than he could with complete satisfaction to himself. It would, Sir Richard Atkin considered, be in the interest of the practitioner for the court to have recourse in these cases to the services of its own surgeon—that there should be one man in the district, recognised as an authority in medical jurisprudence, who could relieve the private practitioner of this difficult task. Another important class of cases is that of abortion, a practice the public danger of which necessitates great care in the reporting of suspected instances. In the case of insanity the medical and legal views might be said to differ; a most important move would be the agreement of the professions as to some formula commending itself to both. The question which divided them—namely, that of criminal responsibility—had perhaps been considered too much in relation to murder alone. Other difficult cases requiring medical evidence were those of divorce, those arising under the Workmen's Compensation Acts, and those relating to all departments of public health—difficulties involving the skill of the lawyer equally with that of the doctor. In neither profession were sufficient pains taken to develop this relation between them. Sir Richard Atkin concluded with the suggestion that medical jurisprudence might be made a post-graduate subject for medical men.

VULVAR DIPHThERIA SIMULATING SOFT CHANCER.

ALTHOUGH diphtheria of the vulva is relatively frequent in small children, usually secondary to faucial diphtheria, this localisation is extremely rare in adults. Dr. Ernst Kromayer, of Berlin, reports a case in a woman, aged 22, who, in May, 1919, had contracted syphilis, for which she was treated with salvarsan and mercury. On admission to hospital in the following August symptoms of syphilis were no longer present, but there was a profuse yellow vulvar discharge and several ulcers round the urethral orifice and clitoris, which were regarded as chancroidal. In spite of cauterisation with carbolic acid, which was continued for ten weeks, the ulcers became more extensive, and when the patient was first seen by Dr. Kromayer on Nov. 5th their floor was covered with a thick white adherent membrane. Diphtheria bacilli were found in the smear and 3000 units of antitoxin were injected. Rapid improvement took place and within three weeks of the injection the ulceration had completely healed. Dr. Kromayer has been unable to find a similar case in the literature of vulvar diphtheria being mistaken for soft chancre.

SYSTEMATIC INSTRUCTION IN OTO-LARYNGOLOGY.

AN attempt on the part of the Surgeon-General to secure for the American Army a service in oto-laryngology, equal to that of the other subdepartments of medicine, apparently has disclosed a lack of proper special education on the part of those who claim to be specialists in this subject. Such a state of affairs was, very rightly, judged to be a serious matter, and a powerful committee, under the chairmanship of Dr. Gibb Wishart and representing the American Medical Association and all the American societies in connexion with the speciality, has taken the matter up and has issued a series of recommendations on the minimum curriculum to "be followed by those who shall hereafter seek to become recognised as specialists in oto-laryngology." No regular service in oto-laryngology was established in this country in connexion with the army, and we do not think that any widespread lack of proper special education would have been discovered among our specialists in these subjects if such a service had

1 Les Rapports de l'Encephalite Lethargique avec d'autres états morbides, Professor Charles Achard, Paris Médical, Sept. 18th, 1920.

2 Dermatologische Wochenschrift, Sept. 18th, 1920.

been instituted. It is rarely that a specialist establishes a practice in this country without being attached to the staff of a hospital, where his attainments are carefully scrutinised, in competition with those of other candidates, before his election. The recommendations are, nevertheless, of considerable interest, and are admirable in their aims and scope.

The first is as follows: "The candidate must recognise that it is impossible to diagnose and treat a patient with an affection of the ear, nose, or throat, skillfully, without a sound knowledge of general medicine, and to that end should either have practised as a licensed practitioner, for four years, or have acted as an interne in a Class A general hospital for at least one year."

After this, the candidate must pursue a course of study, in the post-graduate department of a university, comprising: (a) anatomy of head, neck, and chest, embryology and histology, 100 hours; (b) pathology and bacteriology, 100 hours; (c) operations on the cadaver, 100 hours; (d) physics, 32 hours; (e) physiology, 30 hours; (f) neurology, 20 hours; (g) hygiene and public health, 10 hours; also reading of radiographic plates, knowledge of diseases of teeth and mouth, and general surgical technique.

These are to be considered from the viewpoint of the oto-laryngologist, and the committee hopes to secure a uniform course at the various universities.

These recommendations cannot be made compulsory, save where the committee proposes to arrange with the special hospitals and special departments to accept as residents only those who have taken the suggested courses of study. But in a further paragraph the committee states that it hopes to secure that the post-graduate departments of the universities will grant a qualification, degree, or diploma, to be conferred only upon such candidates as have followed the course laid down. If this plan is successful it will have the effect of inducing everyone who wishes to take up oto-laryngology seriously in America to go through the prescribed course of study, and the result will be studied with interest in this country, where a special qualification in these subjects has also been from time to time proposed. The facilities for clinical study are very great, and a uniform course of academic instruction is also followed less desirable but is unlikely to be largely followed unless it were a step towards a special stamp. In this connexion we may direct attention to post-graduate courses in oto-rhino-laryngology being held in Paris at the Hôpital Saint-Joseph, under the direction of M. Georges Laurens. Besides attendance at the ordinary practice of the hospital, there will be given to the students two courses, an elementary course of nine lessons or demonstrations for general practitioners, and a full course of 26 lessons for those wishing to specialise. The former began on Nov. 1st. The latter begins on Nov. 15th.

THE next session of the General Medical Council will commence at 2 P.M. on Nov. 23rd, when the President, Sir Donald MacAlister, will give an address.

THE annual report of the Chief Medical Officer of the Board of Education has just been published and contains much valuable information on the school medical service, medical and dental inspection, with the treatment provided, as well as reports on special subjects of medical care—cripples, defectives, and children suffering from tuberculosis. There are also sections on the training of health visitors and midwives, physical education, and juvenile employment; while the appendices include tabular lists of the school medical officers employed by each local education authority, and notes on the average school attendance for the period preceding the war, the number of children medically inspected last year, and a tabular statement for England and Wales showing the mortality at several ages from 1907 to 1919 from all causes and from tuberculous disease. Not the least important part of the Report is the section showing what is being done to meet the need for imparting to children a knowledge of the laws of a healthy life, for, as Sir George Newman points out, "it is certain that neglect, ignorance, and inattention to the laws of hygiene in childhood loom large in the sum total of disability."

FEDERATION OF MEDICAL AND ALLIED SOCIETIES.

DISCUSSION ON THE MINISTRY OF HEALTH (MISCELLANEOUS PROVISIONS) BILL. CLAUSE 11.

A CONFERENCE, convened by the Federation of Medical and Allied Societies, was held in the Council Room of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., on Nov. 5th. Sir MALCOLM MORRIS presiding.

The CHAIRMAN, in opening the proceedings, said that the Conference was composed of representatives of the societies concerned with the health of the country, and it had been convened to consider Clause 11 of the Ministry of Health (Miscellaneous Provisions) Bill now before Parliament. If the clause were passed in its present form the Bill would be a most important departure, but the Minister of Health had not consulted the medical and allied professions of the country before presenting the Bill containing it. The clause would tend to stop voluntary contributions to hospitals and place upon the country an intolerable burden of increased rates.

Among those present were:—

Sir Henry Craik, M.P.; Captain W. E. Elliot, M.P.; Lieutenant-Colonel P. E. Fremantle, M.P.; Major J. E. Molson, M.P.; Lieutenant-Colonel Nathan Raw, M.P. (Medical Committee of the House of Commons); Lord Knutsford; Miss E. C. Barton (Poor-law Infirmary Matrons' Association); Dr. J. F. Gordon Dill, Dr. W. Pasteur, and Sir John MacAlister (Royal Society of Medicine); Dame Sidney Browne, Mrs. Cecil Carter, and Miss M. S. Rundle (College of Nursing, Limited); Dr. E. H. Stancomb and Dr. A. A. MacKeith (Southampton Medical Parliamentary Committee); Dr. A. Welply (Editor, *Medical World*); Dr. Squire Williams (Editor, *The Lancet*); Dr. R. McSair Wilson, Mr. Sprigge (Editor, *Pharmaceutical Journal*); Miss Collum (College of Chapmen (Pharmaceutical Journal); Mr. Francis Chamberlain, Nursing Bulletin); Dr. C. M. Wilson; Dr. Charles Buttar; Mr. Herbert Paterson (Royal British Nurses' Association); Colonel Sir John Young (Central London Throat, Nose, and Ear Hospital); Miss A. M. Peterkin and Miss E. Richmond (Queen Victoria's Jubilee Institute for Nurses); Mr. Sidney Spokes (London and Counties Medical Protection Society); Miss D. McWilliam (Welfare Workers' Institute); Dr. Arthur Latham; Miss A. Dowbiggin and Miss M. L. Rimmer (National Union of Trained Nurses); Mr. A. Molhuish (Pharmaceutical Society); Mr. Franck Pearce and Mr. C. F. Rilot (British Dental Association); Mr. Neville Chamberlain, M.P., and Mr. Walter Kewley (British Hospitals' Association); Miss Rosalind Paget and Miss M. Eaton (Incorporated Midwives' Institute); Sir Thomas Horder; Mr. Grant Ramsay (Institute of Hygiene); Dr. R. H. Cole (Medico-Psychological Association of Great Britain and Ireland); Dr. Howard Marshall; Sir Ronald Ross (British Science Guild); Dr. Muir, Dr. C. T. Parsons, and Dr. H. W. Bruce (Infirmary Medical Superintendents' Society); Dr. J. Ford Anderson; Mr. J. P. Lockhart-Mummery; Mr. Ernest Batten (Sydenham District Medical Society); Mr. Ernest Clark; Mr. Vivian Greenyer (National Medical Union); Miss Louisa Aldrich-Blake (Medical Women's Federation); Dr. Alex. Blackhall-Morison (North London Medical and Chirurgical Society).

The clause of the Bill under discussion reads as follows:—

Ministry of Health (Miscellaneous Provisions) Bill, 1920 (Clause 11).—(1) The council of a county shall have power (a) to supply and maintain hospitals (including out-patient departments) for the treatment of illnesses and diseases generally, or for the treatment of any particular illness or disease, or any particular class of illnesses or diseases, (b) to contribute, on such terms and conditions as may be approved by the Minister, to any voluntary hospitals or similar institutions within their area; and (c) to undertake the maintenance of any Poor-law hospitals or infirmaries within their area.

DR. ARTHUR LATHAM moved the first resolution:—

This Conference of representatives of medical and allied organizations, whilst desirous of assisting the Minister of Health in his efforts to increase the efficiency of the health services of the country, regrets that it has been found necessary to introduce health legislation involving important principles in a Miscellaneous Provisions Bill.

He said that when the Ministry of Health was initiated it was hoped that a new era with regard to the cure and prevention of disease was inaugurated in the country. It was recognised that the Minister of Health was confronted with difficult problems and would require time to put out a well-considered scheme both

from the point of view of prevention and of cure. It was hoped that in time a scheme of this kind would be placed before the medical profession and allied bodies, and it was disappointing to find such an important matter as the hospital accommodation of the country inserted in a clause of a miscellaneous measure.

Dr. STANCOMB seconded, remarking that if the particular form of legislation under consideration came into effect the medical profession would shortly find itself face to face with various accomplished systems of medical service which would in all probability be found to be in distinct contradiction to the Interim Report of the Medical Consultative Council (the Dawson Report), and certainly, as far as the area which he represented was concerned, in complete opposition to practitioners.

Captain ELLIOT deplored the lack of active interest on the part of the medical profession in bringing before Members of Parliament, professional as well as lay, considered opinions upon health measures. The Minister of Health was not entirely at fault if undesirable measures were passed, for, as a country got the Government it deserved, the medical profession would get the treatment it demanded.

Colonel FREMANTLE deprecated any attack on the Minister of Health, the measure having been introduced to meet urgent needs.

Sir HENRY CRAIK, while not assigning responsibility to anyone, thought that it was extremely regrettable that such a Bill should be introduced, involving as it did important principles of a totally heterogeneous character, which ought to be dealt with in as many separate measures.

Dr. R. MCNAIR WILSON claimed to know to some extent what the public thought, and he asserted that it was extremely interested in matters of health. The House of Commons was not in touch with the opinion of the public, which showed that when an appeal for hospitals was made even the poorest of the population wished to support the voluntary principle.

Dr. R. H. COLE also supported the resolution, alluding to Clause 10 in the Bill as requiring amendment for medical reasons. The resolution, on being put to the meeting, was carried.

Sir THOMAS HORDER proposed that—

This Conference of representatives of medical and allied organisations considers that the interests of the public in matters of health legislation can be safeguarded if the Minister of Health avail himself of the means now offered of consulting collectively the medical, dental, pharmaceutical, nursing, and midwives professions, and others concerned with the national health, as the members of these professions not only provide the health services, but are looked to by the public for guidance in such matters.

The Minister of Health, he said, neither alone nor with the help of his bureau, could get a proper estimate as to the views and needs of the medical profession. The principle of the resolution had been conceded by the Minister of Health himself, both in public and in private, and Dr. Addison had emphasised the fact that, in the ultimate, he was dependent upon the general opinion of the medical profession for successful health legislation. Quoting the late Lord Rhondda, who had been keenly interested in public health matters and who before his death regretted that he could never be the Minister for Health, Sir Thomas Horder said that Lord Rhondda fully realised that for successful health legislation he would want "the machinery whereby I might adopt the opinion of the profession, and this machinery should not be part of the bureau." The Consultative Council, continued Sir Thomas Horder, was part of the bureau, and this had been admitted by Dr. Addison himself. The means of consulting the medical profession already existed in the Federation of Medical and Allied Societies, but as to the efficiency of that body he must not speak.

Captain ELLIOT believed that though individually the profession had means of expressing its opinion, it had no means of doing so collectively before measures affecting health came into effect.

Mr. LOCKHART-MUMMERY, in seconding the resolution, said that after all the voluntary hospitals of the country had been in the main founded by the medical profession, though it had not found all the money.

Dr. STANCOMB agreed that the community were interested in matters of health, but community of medical interest was lacking. By bringing in a Bill which was not an ad hoc measure it was quite possible that the Minister of Health would receive advice from various sources of clashing interests.

Sir HENRY CRAIK proposed an amendment, which was seconded by Captain ELLIOT, making the resolution read as follows:—

This Conference of representatives of medical and allied organisations considers that the interests of the public in questions of health legislation demand that the Minister should avail himself of the means now offered of consulting collectively the medical, dental, pharmaceutical, nursing and midwives professions, and others concerned with the national health, inasmuch as the members of these professions not only provide the health services but are looked to by the public for guidance in such matters.

This was carried.

Dr. BUTTAR proposed that—

This Conference of representatives of medical and allied organisations suggests that, as the British voluntary hospital system has been proved to be the most efficient and economical means of providing institutional treatment, and one which stands as a pattern for the world, it would be a mistake to establish municipal general hospitals until the system of patients contributing towards the expense of their maintenance in voluntary hospitals and the attempts which are now being made to link up voluntary hospitals with Poor-law infirmaries have been given a fair trial.

He said that in the debate in the House of Commons on Thursday night much in the Bill had been modified, but the position as it existed at Bradford had not been ruled out, and if extended all over the country would be extremely bad for the voluntary system. At the present time there were two tendencies of thought; on the one side there was a reaction against what was called charity by those who thought that hospital treatment should be given as a right—that was one of the things that had led to the Bradford Municipal Hospital; and on the other hand there was a demand for the restriction of nationalisation, in which he included the municipalisation of hospitals. As far as hospitals were concerned, the argument for municipalisation had been largely condemned by the work of Sir Napier Burnett, who asserted that to run a State or municipal hospital, on the lines of the present voluntary hospitals, would cost at least one-third as much more. If that statement were true it was obvious that such expensive experiments should not be made. As regards the objection that voluntary hospitals made the patients the objects of charity, the system which was being tried in London and elsewhere of payments by patients could be adopted with success. The linking up of Poor-law infirmaries to voluntary hospitals was already in existence at St. Mary's Hospital, which had joined with Paddington Infirmary, and a similar experiment was about to be tried by other hospitals. This was an alternative to municipalisation. He would like to see the experiments which he had mentioned fairly tried before any new ventures were embarked upon.

Mr. NEVILLE CHAMBERLAIN seconded the resolution.

Colonel FREMANTLE said the basis for the proposals of the Minister of Health was the critical position of voluntary hospitals, and his primary object was to save the voluntary principle. He (Colonel Fremantle) suggested that any municipal or State contribution should be limited to grants per capita for those persons unable or only partially able to meet the payment of their maintenance and treatment at a general hospital. That would be a contribution on a definite basis, and apply only to those who could not afford to pay for full maintenance and treatment. Only by having things on a definite and proper basis could State aid be obtained.

Colonel Sir JOHN YOUNG said that it was necessary to proceed with great prudence and care in examining the voluntary system. He expressed his belief that a system of voluntary contributions from patients who could afford them would remove the sentimental objection to charity, adding that such a system was working well at the Central London Throat, Nose, and Ear Hospital.

Lord KNUTSFORD said he believed that the voluntary system had come to an end. He declared that on Jan. 1st the London Hospital would not be able to

afford to pay its bills, and the institution would be closed unless help arrived. His time, he said, was taken up in trying to devise a scheme which would enable the voluntary hospitals to go on, and also to provide proper aid for the health of London. He believed the reason that they could not go on at the London Hospital was not because subscriptions had fallen off, not because the "new rich" did not subscribe, but because of the present enormous cost of everything, and it was quite impossible to get £300,000 a year where they at present got £200,000. Voluntary hospitals had done good work, but they had failed to meet the needs of the health of London. There were 800 people waiting to get in, and the hospital was cramped in every direction. They could not carry on research; they could not meet the requirements of doctors. The voluntary system had done its best, but its day was over. He proposed as an ideal scheme that the London County Council should make itself the health authority for the whole of London, and that it should have outlying hospitals and central hospitals. All the great teaching centres would remain as consultative hospitals. Poor-law infirmaries should be municipal hospitals, with really good resident staffs, and these would be the outlying hospitals in his scheme. At the central hospitals should be the schools, and cases which the outlying hospitals would not be able to attend to should be sent to them. The London County Council would be able to maintain the voluntary subscriptions, as well as to keep up the outlying hospitals out of the rates. A lot of people connected with voluntary hospitals loved them for the work they were doing, and would always go on helping and contributing to them to carry on any work of research. He did not think that municipal aid would put an end to the voluntary system. It was a mistake, he asserted, to suppose that the voluntary hospitals were meeting the wants of London to-day—the amount of State aid already received proved that. He urged that more citizens should help in the work and that efforts should not be confined to the big hospitals, closing with the statement that "the way the panel system is worked is a perfect disgrace."

Dr. H. W. BRUCE, representing the Society of Infirmaries and Medical Superintendents, said that at the present moment there were not in England sufficient hospital beds for the real needs of the population, more particularly for lying-in women, and those extra beds could not be provided by voluntary hospitals. In order to provide the beds which the population needed there must be additional hospitals, and it must not be thought that any process of linking up voluntary hospitals with Poor-law institutions would provide a single one of the extra beds that the country required. These institutions had been described as half empty, but the Government census was taken in the summer; had it been taken in the winter they would have been found full.

Dr. GORDON DILL defended the voluntary system, and thought Lord Knutsford was speaking for London rather than the provinces. He gave the figures showing how the deficit at the West Sussex Hospital could be paid off by a system of payment for bare maintenance by the patients who could afford it.

After a long discussion, in which many speakers took part, Colonel Freimantle's suggestion with regard to per capita payments was put as an amendment, but afterwards withdrawn, and a resolution was finally adopted in the following form:—

This Conference of Representatives of Medical and Allied Organizations suggests that the time has now come when the British voluntary hospitals system should be supplemented by State aid, but that the system of patients' contributions towards the expenses of their maintenance in voluntary hospitals and the attempts which are now being made to link up voluntary hospitals with Poor-law infirmaries should be given a fair trial.

This resolution represents the original motion as altered by an amendment proposed by Sir THOMAS HORDER and seconded by Sir RONALD ROSS, and a further amendment proposed by Mr. NEVILLE CHAMBERLAIN and seconded by Dr. BATTEN. It was carried with acclamation.

On the motion of Mrs. CECIL CARTER, seconded by Dr. R. D. BATTEN, the following resolution was carried, and the Conference terminated.

This Conference of Representatives of Medical and Allied Organizations considers that in the event of the establishment of municipal hospitals it is in the public interest that the local medical practitioners, dental surgeons, pharmacists, nurses, and midwives should have a clearly defined representation in connexion with all local health authorities or such bodies as are responsible for the administration of local hospitals and Poor-law institutions.

The meeting was well attended and the speeches business-like, and the Federation may be congratulated on having provided an opportunity for a valuable open discussion. Communications arising out of the discussion or otherwise should be addressed to Dr. Howard Mummery, Secretary of the Federation of Medical and Allied Societies, 5, Vere-street, Cavendish-square, London, W.

MEDICINE AND THE LAW.

Opium Smoking and the Law.

THE reports in the newspapers of proceedings taken by the police against persons, usually Chinamen, in the neighbourhood of the London docks, have given many persons the impression that "keeping an opium den" is a class of offence punishable as such, like keeping a disorderly house or a gaming house. In this they have been wrong. It has been realised that opium smoking is a pernicious habit dangerous to the health of those who indulge in it to excess, and that it leads, directly or indirectly, to the commission of crimes and offences; and efforts to deal with it or to minimise the evil, if not to end it, have been made by the police. In the absence, however, of any legal power to deal directly with the "den" as such, it has been necessary to follow up the "raid," which we have read of in the police reports, with prosecutions either for dealing with a poisonous drug in contravention of the law regarding the sale of poisons, or for keeping a gambling house. Opium and gambling are so closely associated in the districts in seaports frequented by Chinese that the latter has often formed the subject of the proceedings eventually taken, where proof of dealing in the drug without observing the necessary formalities has been unobtainable. This awkward method of checking a practice dangerous to health, and leading to and connected with vice and crime, will now be superseded by proceedings under Part II. of the Dangerous Drugs Act, 1920. This is an Act dealing specially with opium in the various forms in which it is a source of danger to the vicious and self-indulgent. Part II. is particularly concerned with "prepared opium," defined as meaning opium prepared for smoking, and as including dross and any other residues remaining after opium has been smoked. Section 4 makes it unlawful to import or export prepared opium. The effect of Section 5 is to render it an offence against the Act for any person (a) to manufacture or deal in prepared opium; (b) to possess it; (c) to be the occupier of any premises and permit them to be used for preparing opium for smoking, or for selling or smoking it; (d) to be concerned in managing any premises used for such purposes; (e) to have in his possession any pipes or utensils for use in opium smoking or in preparing opium for smoking; (f) to smoke or otherwise use prepared opium, or to frequent any place used for the purpose of opium smoking. This seems comprehensive enough, and it need only be added that the powers given to the police to enforce the Act by search and arrest are considerable and the penalties are heavy. Any constable may arrest without warrant any person who has committed, or attempted, an offence against the Act, or is reasonably suspected of having done so, if there are grounds for believing that that person will otherwise abscond or if his name and address cannot be ascertained. An offender against the Act is liable on summary conviction to a fine up to £200 or to imprisonment, with or without hard labour for six months, or to both, subsequent convictions involving even heavier punishment. No doubt these heavy penalties are included with a special view to the traffic in cocaine, dealt with in another part of the Act.

Veneral Disease and Professional Secrecy.

The question of the privacy of veneral clinics came up in the Divorce Court early in the present year (see THE LANCET, 1920, 1, 163, 171). Dr. F. J. H. Coutts deals with it, and with this case in particular, in a section of the first annual medical report of the Ministry of Health. The Veneral Diseases Regulations, he writes, cannot override the general law which requires a witness in a court of justice to answer all such questions as the judge may hold to be relevant to the issue before the court. Sir George Newman's letter dealing with this question may usefully be given here in full:—

Ministry of Health, Whitehall, S.W.1.

31st March, 1920.

The attention of the Ministry of Health has been called to a recent case in the Divorce Court (Garner v. Garner, reported in the Times of January 14th, 1920), in which the question was raised as to the obligation of a doctor to give evidence of facts which have come to his knowledge while attending a patient at a veneral diseases clinic.

It seems clear from comments which have appeared in the press that some misapprehension exists as to the exact scope of the learned judge's ruling in the case. The report of the case shows that it was at the patient's own instance, and on her behalf, that the doctor who had attended her was called to give evidence as to her state of health. The doctor having drawn the attention of the judge to the Article in the Veneral Diseases Regulations which requires all information acquired by a doctor in the course of his duties at a veneral diseases clinic to be regarded as strictly confidential, the learned judge ruled that the witness was nevertheless bound in law to answer the questions put to him.

The case was not therefore one in which any question of violation of professional confidence arose. With regard, however, to the Veneral Diseases Regulations themselves, the Ministry are advised that the obligation which they impose on the doctor is an obligation not to disclose to third parties any facts which his examination of the patient may bring to light. This in effect re-states the well-known rule of the medical profession, and adds a legal sanction to it. But, so far as the Ministry are aware, a disclosure at the express request of the patient and in the patient's own interest would not be contrary to any principle of medical ethics, and the Ministry are advised that no different interpretation should in this respect be placed upon the regulations. Cases will readily occur to every doctor in which it may almost be said to be the moral or social duty of the doctor to comply with such a request. In a case such as that above referred to, for example, it is easy to see how a refusal on the part of a doctor to give the evidence necessary to establish his patient's case might even involve a denial of justice to the patient.

It is, however, necessary to add that the Veneral Diseases Regulations do not purport to, and indeed could not (as the learned judge's ruling shows), override the general law which requires a witness in a court of justice to answer all such questions as the judge may hold to be relevant to the issue before the court. The Ministry understand that, strictly speaking, the legal profession alone are entitled to claim a professional privilege in this respect, and it may be that cases will arise in the future in which a doctor, subpoenaed at the instance of the other party to the litigation as a witness of facts relating to a patient, cannot give evidence without violating the rule of professional confidence.

Sir George Newman concludes: "If in these circumstances the doctor finds himself involved in a conflict of duties, it appears to the Ministry that he may properly appeal to the court for protection, and they are confident that to any such appeal the court would, so far as the law permits, give full and sympathetic consideration."

Birmingham and Mental Inefficients.

In February, 1919, there was initiated at Birmingham a scheme whereby the justices should avail themselves of the services of Dr. W. A. Potts in dealing with persons suspected of mental inefficiency brought before them. This was effected by arrangement with the Watch Committee, and in the following September the Prison Commissioners appointed Dr. M. Hamblin Smith, of Portland prison, as resident medical officer at the Birmingham prison, for the express purpose of assisting the justices in cases remanded or committed to prison. Structural alterations at the prison have since been made to enable accused persons, committed or remanded for observation or treatment under the new scheme, to be kept apart from the other inmates. A report of the General Purposes Committee has

now been presented to a meeting of the justices at Birmingham which speaks of the valuable assistance afforded by Dr. Hamblin Smith in giving evidence in cases in which, before the scheme, the attendance of the prison medical officer would not have been thought necessary. It also expresses satisfaction with the results obtained during the year for which the experiment has been tried. The report contains the records of 39 cases, the majority of which were examined by Dr. Potts, a few, remanded to prison, having also been under the care of Dr. Hamblin Smith. Reports on the working of the scheme by the two gentlemen named are appended. Although the number of cases dealt with has necessarily been small, examination of the table mentioned shows that, even in the short time that has elapsed since the cases referred to were before the justices, satisfactory results have already been achieved in many instances. In several, naturally, the latest information is to the effect that the defendant is still in the industrial school or other institution to which he has been sent. In future tables of this kind space will no doubt be found for the date on which the magistrates dealt with each case, which will render the degree of success attained easier to gauge. Dr. Potts, in his report, calls attention to the examples of mental defects which his examinations have revealed and which had before escaped detection as such. He also dwells upon the particular attention which should be accorded to children and young persons. He is greatly impressed with the early age at which the criminal propensities of children before the court have really begun, without having been noticed or dealt with, and he refers with approval to the conclusion of American investigators that in a large proportion of charges in children's courts there should be a thorough medical and psychological examination. Dr. Hamblin Smith's report contains valuable suggestions for improvement in the law relating to mental deficiency, and generally as to the treatment that should be meted out to the convicted prisoner. Treatment of the criminal, having regard to the act committed as a symptom and not as supplying the measure of a punitive sentence, may be said to summarise the recommendations that he makes. The City of Birmingham may certainly be congratulated upon an experiment which should bear considerable fruit in the future. The co-operation of the Prisons Commissioners shows that the matter is being watched with interest by the authority most intimately concerned and best able to further its development. A note by Dr. Potts states definitely that the examination and thorough investigation conducted by him has been resented by no one concerned, and has often been welcomed by relatives. In no case, moreover, has he found examination superfluous, an indication that a larger proportion might be referred to him with advantage. The time required for measures of inquiry is one of the difficulties, as it involves a larger number of workers than more perfunctory methods demand. There is also the question of expense, to be saved, as Dr. Hamblin Smith points out, in the long run by the eventual diminution of crimes to be inquired into. Here we have an example of preventive measures, as distinct from treatment when the disease has broken out.

SMALL-POX OUTBREAK AT MIDDLETON.—There have been 60 cases recorded up to Nov. 3rd, 20 males and 40 females, but so far there have been no deaths. Dr. Trimble, at the Lancashire County Council meeting on Nov. 5th, said it was well known that only some 50 per cent. of the public were protected by vaccination, whereas only vaccination and revaccination could prevent small-pox. A full report on the outbreak is promised.

THE LATE DR. CHARLES HEMMING.—Retiring from practice over 20 years ago, Dr. Hemming has since lived at Orvingden, near Brighton. He died at Hove on Nov. 3rd at a great age. A Middlesex Hospital student, he took the L.S.A. diploma in 1853 and became M.R.C.S. Eng. in the same year, proceeding to the M.D. degree at St. Andrews three years later. He practised at Abingdon, Berkshire, and was for some time coroner for the borough of Abingdon. In Brighton and Hove he was well known in chess circles. He was twice married and his son is now in practice in Brighton.

Public Health.

SCHOOL MEDICAL SERVICE.

Colchester.

AT Colchester the average number of children on the school registers in 1919 was 6315, with an attendance ratio of 89·4 per cent.; the number medically examined in the routine inspections was 2203, the group of "leavers" being very numerous (1212), on account of the routine examinations having been in abeyance during 1917 and 1918. A special inquiry was made as to the effect of child labour during the war. It was found that 420 children were employed before or after school hours, and that 141 employers were infringing the Employment of Children By-laws of 1913, the worst cases being those of errand boys and boys delivering newspapers. Steps were taken to bring these by-laws to the public notice, and employers were warned. There can be little doubt that benefit will result to the children, and that school teachers and health officers will welcome the reduction of the hours of work allowed, especially before attending school in the morning. Dr. W. H. Corfield, the medical officer of health and school medical officer, mentions in his report that, owing to the year's work having to be completed in six months, only routine cases (that is, children in the code groups) were examined in the schools; all "specials" being sent to the Treatment Clinic. Dr. R. H. Vercoe, the assistant school medical officer, draws attention to a large school recently erected (Canterbury-road Infants) in which all the classrooms, with one exception, face due north, and remarks with justice that "this appears to be an extremely unfortunate design." With the many years' experience in school-planning and construction now available it is difficult to understand how such an arrangement can have been either designed or approved. Dr. Vercoe also gives some interesting details as to children with heart disease. Of 20 such cases 8 had suffered from rheumatic fever or rheumatism, 3 from diphtheria, and 2 from scarlet fever; 1 girl had had five attacks of rheumatic fever, with marked dilatation and mitral disease. She "showed some dyspnoea after severe exercise; she was stopped from drill and the parents given general advice." Unless such cases as these are definitely placed under regular medical care and supervision there will always be risk of serious and even fatal consequences, the effect of which (if happening in school) may be deplorable.

Dr. Vercoe contributes a very useful appendix on *Pediculosis capitis* in school children, based on extensive observation. As to causation, with reference to the relative importance of school contact, as compared with parental negligence, he shows that the latter is the more important factor. Immediately after the summer holidays of five weeks two schools were examined (girls only): in one of these, out of 92 girls 45 per cent., in the other 27 per cent. out of 293 girls, were found to be badly infested. In the first school all of the badly infested children (42) were excluded; in the second and larger school it was found inadvisable to exclude all of these (81); therefore the committee decided that 16 only should be excluded; but the school nurse visited the homes of all affected and instructed the parents as to treatment. The result was that all the excluded children in both schools (58) were clean enough to be readmitted within periods ranging from three days to four weeks; while of the 65 children not excluded, none were really clean at the end of the period, and in 67 per cent. there was no improvement. Parental negligence is certainly an important factor, but there may be extenuating circumstances. Dr. Vercoe considers in detail the various methods of treatment for this condition. Warm vinegar, as commonly recommended, he has not found to be satisfactory; kerosene is dangerous. Actual lice can be got rid of by the usual methods without difficulty; for removal of nits solutions of 20 per cent. acetic acid, 5 per cent. potash, and 10 per cent. hydro-

chloric acid were compared. Cold solutions had no effect whatever; with hot solutions nits could be easily drawn off the hairs. Hot vinegar (not warm) is recommended, "as hot as can be borne by the scalp." The main recommendation is "exclusion from school at the beginning of term, together with clear printed instructions, and prosecution of those who have no extenuating circumstances and are not clean within two weeks, appears to be the best course."

URBAN VITAL STATISTICS.

(Week ended Nov. 6th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 10·7, 10·9, and 11·7 in the three preceding weeks, further rose to 11·8 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 11·7, against 11·8 per 1000 in the previous week, while among the remaining towns the rates ranged from 3·8 in Rotherham, 4·3 in Smethwick, and 5·5 in Tottenham, to 18·6 in West Bromwich, 23·4 in South Shields, and 24·1 in Stockton-on-Tees. The principal epidemic diseases caused 245 deaths, which corresponded to an annual rate of 0·7 per 1000, and comprised 129 from infantile diarrhoea, 69 from diphtheria, 15 from scarlet fever, 14 each from measles and whooping-cough, and 4 from enteric fever. The deaths from diarrhoea, which had been 207, 193, and 185 in the three preceding weeks, further fell to 123, and included 26 in London, 15 in Sheffield, 10 in Liverpool, 8 in Manchester, and 7 in Birmingham. The mortality from the remaining diseases showed no marked excess in any of the large towns. There were 5374 cases of scarlet fever and 2353 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 5167 and 2301 respectively at the end of the previous week. The causes of 26 of the 4045 deaths in the 96 towns were uncertified, of which 5 were registered in Tynemouth, 4 in Birmingham, and 3 in Liverpool.

Scottish Towns.—In the 16 largest Scottish towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 11·5, 12·1, and 13·9 in the three preceding weeks, further rose to 14·7 per 1000. The 348 deaths in Glasgow corresponded to an annual rate of 16·3 per 1000, and included 11 from infantile diarrhoea, 3 each from measles, scarlet fever, and diphtheria, and 2 each from enteric fever and small-pox. The 89 deaths in Edinburgh were equal to a rate of 13·6 per 1000, and included 2 from diphtheria and 1 each from enteric fever, measles, and infantile diarrhoea.

Irish Towns.—The 117 deaths in Dublin corresponded to an annual rate of 14·7, or 0·8 per 1000 above that recorded in the previous week, and included 4 from infantile diarrhoea, 2 each from whooping-cough and diphtheria, and 1 from enteric fever. The 100 deaths in Belfast were equal to a rate of 12·6 per 1000, and included 4 from infantile diarrhoea, and 2 each from scarlet fever and diphtheria.

VITAL STATISTICS OF LONDON DURING OCTOBER, 1920.

In the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 16·3 per 1000 of the population, estimated at 4,358,309 persons; in the three preceding months the rates had been 6·5, 6·6, and 11·3 per 1000. Among the metropolitan boroughs the lowest rates from these diseases were recorded in Kensington, Chelsea, the City of Westminster, Hampstead, Stoke Newington, and Lewisham; and the highest in Bethnal Green, Stepney, Poplar, and Bermondsey. Scarlet fever showed a marked increase in prevalence—50 per cent.—over the already high number of the preceding month; this disease was proportionally most prevalent in Bethnal Green, Stepney, Poplar, and Bermondsey. The Metropolitan Asylums Hospitals contained 5117 scarlet fever patients at the end of the month, against 1940, 2251, and 3533 at the end of the three preceding months; the weekly admissions averaged 873, against 284, 335, and 603 in the three preceding months. Diphtheria also showed a considerable increase in prevalence—25 per cent.—over the month of September; the greatest proportional prevalence of this disease was recorded in Farringdon, Islington, Hackney, Holborn, Poplar, and Battersea. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1470, 1353, and 1773 at the end

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING OCTOBER, 1920.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1919.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.											
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhoea and enteritis (under 5 years).	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.
LONDON	4,353,309	—	3700	1449	—	25	1	31	223	9	9	5419	16.3	—	6	14	63	12	8	155	233	0.8	3323	10.5
West Districts:																								
Paddington	143,938	—	87	70	—	1	—	2	7	—	—	168	15.2	—	—	—	1	—	—	7	7	0.7	121	11.0
Kensington	157,886	—	83	29	—	1	1	—	6	—	—	127	10.5	—	—	—	1	—	—	7	8	0.6	121	11.0
Hammersmith	130,981	—	146	50	—	—	—	—	—	—	—	200	19.9	—	—	—	—	—	—	8	6	0.6	103	10.2
Fulham	152,543	—	147	63	—	—	—	—	—	—	—	222	19.0	—	—	—	2	—	—	8	10	0.9	117	10.0
Chelsea	160,573	—	19	24	—	—	—	—	5	—	—	41	9.5	—	—	—	—	—	—	3	1	0.2	40	8.6
City (Westminster)	127,533	—	38	17	—	—	—	—	1	—	—	61	6.2	—	—	—	1	—	—	3	5	0.5	103	10.5
North Districts:																								
St. Marylebone	97,953	—	80	10	—	1	—	—	5	—	2	98	13.0	—	—	—	1	—	—	2	4	0.5	98	13.0
Hamstead	88,012	—	37	18	—	—	—	—	—	—	—	81	9.0	—	—	—	1	1	—	—	1	0.1	56	8.3
St. Pancras	219,434	—	127	72	—	3	—	—	8	—	—	210	12.5	—	—	—	—	—	—	11	10	0.6	176	10.5
Islington	323,043	—	225	181	—	—	—	1	12	1	—	424	17.1	—	—	2	14	1	1	8	32	1.2	218	10.5
Stoke Newington	50,954	—	20	19	—	—	—	—	—	—	—	41	10.5	—	—	—	—	—	—	11	2	0.5	44	11.3
Hackney	216,736	—	178	119	—	—	—	—	20	1	—	318	19.1	—	—	1	3	1	—	11	16	1.0	164	9.9
Central Districts:																								
Holborn	38,156	—	19	19	—	—	—	—	1	—	—	39	13.3	—	—	—	—	—	—	2	3	0.7	55	18.8
Finsbury	75,291	—	77	14	—	—	—	—	1	9	—	101	17.5	—	—	1	1	—	—	1	4	1.0	63	10.9
City of London	13,693	—	10	6	—	—	—	—	—	—	—	16	15.0	—	—	—	—	—	—	—	—	—	9	8.4
East Districts:																								
Shoreditch	98,134	—	80	44	—	3	—	—	8	1	1	137	18.2	—	—	—	1	1	1	7	10	1.3	90	12.0
Bethnal Green	110,085	—	157	48	—	—	—	—	14	1	1	222	26.3	—	—	2	—	—	—	10	18	2.1	112	13.3
Stepney	232,506	—	504	58	—	—	—	—	3	20	2	587	32.9	—	—	—	—	—	—	13	17	1.0	207	11.6
Poplar	153,941	—	283	94	—	—	—	—	4	10	—	391	33.2	—	—	—	2	—	—	4	13	1.1	138	11.7
South Districts:																								
Southwark	179,971	—	161	28	—	1	—	—	2	10	—	202	14.6	—	—	—	—	—	1	6	7	0.5	175	12.7
Bermondsey	124,239	—	196	37	—	—	—	—	3	7	—	245	25.7	—	—	1	1	—	—	6	10	1.0	83	8.7
Lambeth	282,322	—	158	58	—	2	—	—	1	14	—	234	10.8	—	—	—	—	—	—	9	15	0.7	229	10.6
Battersea	159,316	—	125	116	—	—	—	—	2	14	2	193	16.3	—	—	—	—	—	—	6	8	0.7	124	10.1
Wandsworth	333,693	—	194	76	—	—	—	—	—	—	—	284	10.1	—	—	—	—	—	—	5	20	0.9	218	9.7
Camden	275,802	—	212	105	—	1	—	—	1	15	—	334	15.9	—	—	—	—	—	—	10	14	0.7	215	10.2
Deptford	111,205	—	105	31	—	—	—	—	5	—	—	143	16.8	—	—	1	—	—	—	6	9	1.1	81	9.5
Greenwich	98,484	—	76	25	—	—	—	—	1	—	—	109	14.4	—	—	—	1	1	—	6	8	1.1	84	11.1
Lewisham	167,754	—	77	23	—	—	—	—	—	—	—	110	8.5	—	—	—	—	—	—	8	8	0.6	124	9.6
Woolwich	136,237	—	83	31	—	—	—	—	—	—	—	122	11.7	—	—	—	—	—	—	8	8	0.6	92	8.8
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

of the three preceding months, further rose to 2284 at the end of October; the weekly admissions averaged 364, against 179, 173, and 266 in the three preceding months. The prevalence of enteric fever was about equal to that in the three preceding months; of the 25 cases notified during the four weeks ended Oct. 30th, 4 belonged to Islington, and 3 each to Hampstead, St. Pancras, Shoreditch, and Lambeth. There were 19 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 24, 17, and 14 at the end of the three preceding months; the weekly admissions averaged 4, against 6.3, and 3 in the three preceding months. Erysipelas was proportionally most prevalent in Hackney, Finsbury, Shoreditch, Bethnal Green, and Stepney. The 31 cases of puerperal fever included 4 in Poplar, 3 in Fulham, 3 in Stepney, and 3 in Bermondsey. The 9 cases of cerebro-spinal meningitis included 2 in Stepney and 2 in Battersea; while of the 9 cases of poliomyelitis, 2 belonged to St. Marylebone.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended Oct. 30th the deaths of 3523 London residents were registered, equal to an annual rate of 10.5 per 1000; in the three preceding months the rates had been 9.6, 9.3, and 9.9 per 1000. The death-rates ranged from 8.3 in Hampstead, 8.4 in the City of London, 8.6 in Chelsea, 8.7 in Bermondsey, and 8.8 in Woolwich, to 12.0 in Shoreditch, 12.7 in Southwark, 13.0 in St. Marylebone, 13.3 in Bethnal Green, and 18.8 in Holborn. The 3523 deaths from all causes included 253 which were referred to the principal infectious diseases; of these, 6 resulted from measles, 14 from scarlet fever, 63 from diphtheria, 12 from whooping-cough, 3 from enteric fever, and 155 from diarrhoea and enteritis among children under 2 years of age. No death from any of these diseases was recorded in the City of London. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Chelsea, the City of Westminster, St. Marylebone, Hampstead, Stoke Newington, Southwark, and Woolwich; and the highest in Islington, Shoreditch, Bethnal Green, Poplar, Wandsworth, Deptford, and Greenwich. The 6 deaths from measles were 14 below the

average number in the corresponding period of the five preceding years; of these, 2 belonged to Bethnal Green. The 14 fatal cases of scarlet fever exceeded the average by 1; of these, 2 belonged to Islington and 2 to Poplar. The 63 deaths from diphtheria were 3 above the average number; of these, 14 belonged to Islington, 7 to Poplar, 5 to Bethnal Green, and 5 to Lambeth. The 12 fatal cases of whooping-cough were 9 fewer than the average; of these, 3 belonged to Bermondsey and 2 to Woolwich. Three deaths from enteric fever were registered during the month, against an average of 10. The 155 fatal cases of infantile diarrhoea showed a decline of 131 from the average; the greatest proportional mortality from this disease occurred in Shoreditch, Bethnal Green, Stepney, Deptford, and Greenwich. In conclusion, it may be stated that the aggregate mortality in London during October from these principal infectious diseases was 38 per cent. below the average in the corresponding period of the five preceding years.

ROYAL UNITED HOSPITAL, BATH.—The committee of this hospital is appealing for funds for the establishment of a hospital for paying patients and a maternity home to contain about 40 beds. The entire cost of the scheme, which includes the transfer of the Royal United Hospital to a more healthy site, is estimated at £150,000. At present the subscriptions for the undertaking amount to about £24,000.

THE LATE DR. JOHN MICHIE.—Dr. Michie, who died recently in a London nursing home, qualified M.B., B.S. Melbourne in 1857, and afterwards held the appointments of house surgeon to the Adelaide Hospital, South Australia, and surgeon to the Adelaide Children's Hospital. Coming to England, he first practised in London, and then for many years resided at Bognor, where he took a prominent part in local affairs, and was elected to the chairmanship of the urban council. He retired from practice some four years ago, and intended to return to his native land, but was prevented by ill-health. A prominent Freemason, he was a Past Master of the Gordon Lodge at Bognor.

Correspondence.

"Andi alteram partem."

"ATYPICAL" ENTERIC FEVER.

To the Editor of THE LANCET.

SIR,—Since the thesis propounded by Dr. R. P. Garrow in THE LANCET of Oct. 30th bears directly upon an investigation carried out in this laboratory during the period 1916-1919,¹ I may, perhaps, be permitted a few comments. Dr. Garrow takes as his text, "'Atypical' enteric fever is essentially the phantom product of bacteriology," and as his main sub-heading, "I believe that enteric fever is frequently undiagnosed but practically never undiagnosable clinically." Whether the latter part of the second statement is true I am not competent to judge. From the public writings of clinicians of wide experience, and from the opinions which I have heard many of them express, I should have doubted it.

That atypical forms of enteric fever should result from the widespread use of prophylactic inoculation would seem, from analogy with other diseases, to be highly probable. Whether Dr. Garrow is right in blaming clinicians for failure to diagnose all enteric infections is, however, for others to decide. We are in agreement on the only essential point; that they are frequently undiagnosed. From the experience gained in dealing with sick evacuated to this country during the period in question, we gained the impression that one of the main difficulties in the way of accurate diagnosis was the rapid transference from one place of observation to another, which was necessitated by the exigencies of warfare on the Western Front. Dr. Garrow contends that many cases have been diagnosed as enteric fever on totally insufficient evidence afforded by laboratory findings. Here we are in complete agreement, and if he will refer to our report, he will find this agreement specifically expressed. The reason for some at least of these dubious diagnoses is, I think, readily explained by the existence of a curious delusion, in which Dr. Garrow evidently shares, for he says: "All the technique that is required for the complete pathological investigation of the enteric fevers can be mastered in a few months. A relatively short period of training serves to turn out an 'expert bacteriologist'—so far as one group of organisms is concerned."

The essence of the paper, as I am sure he will agree, is an attack on the method elaborated by Professor G. Dreyer and his co-workers for the diagnosis of enteric infections in inoculated individuals, and made widely available by the action of the Medical Research Council. Dr. Garrow refers to the fact that experimental re-inoculation of an immunised animal, with an antigen unrelated to that used in the first injection, may be followed by fluctuations in the agglutination titre of the serum for the bacteria with which this initial inoculation was made. He assumes that a similar phenomenon may take place when a second unrelated infection occurs, and quotes in support of this the results obtained by the American Red Cross Committee on Trench Fever, and certain isolated cases in which he disagrees with the serological diagnosis on clinical grounds. The vital point is, of course, do such fluctuations actually occur when some other infection arises in an inoculated individual? Professor Dreyer has published certain results which he considers refute this suggestion, and has given extracts from other more complete series of cases, the records of which were unfortunately destroyed by fire.

In considering our own results we were led to differ from Professor Dreyer on certain points connected with the general principles which underlie the technique involved, but we came to the definite conclusion that the procedure he advocated afforded the best means at

our disposal for the diagnosis of enteric infections in inoculated patients under certain conditions, and that when sufficient care was exercised, the method probably gave a very high percentage of correct diagnostic results. These conclusions were based on a careful examination of some 500 cases, and the objections mentioned above, particularly the findings of the American Red Cross Committee, were carefully considered. With our conclusions Dr. Garrow may very possibly disagree, but until he has shown adequate cause for doing so I cannot think that he will feel completely satisfied; for he says, in speaking of Professor Dreyer's claim for the reliability of his technique—"It is essential to the purposes of this paper to show that this claim is wholly unsubstantiated by the published evidence."

I am, Sir, yours faithfully,

W. W. C. TOPLEY.

The Institute of Pathology, Charing Cross Hospital,
Oct. 30th, 1920

To the Editor of THE LANCET.

SIR,—In exposing the fallacies underlying the view that a single laboratory test (other than direct demonstration of the causal agent in a situation allowing of no dispute) can be of absolute diagnostic worth, Dr. R. P. Garrow, in his paper in your issue of Oct. 30th, has done a valuable service to both clinical and laboratory medicine. Most clinicians with wide experience of the pyrexial problems of the war will support Dr. Garrow in his contention that the so-called atypical forms of typhoid-group infection to which he refers may probably be regarded as non-existent, and his claim that the true infections do not vary greatly in their clinical characters, although they may show wide variations in severity, is also justified in the experience of others.

The great advances which have been made of recent years in laboratory methods of diagnosis have produced an unfortunate temporary reaction, resulting often in loss of clinical confidence and judgment, and in a tendency to accept without sufficient dispute pronouncements made by the bacteriologist or chemist. In the latter days of the war there was a growing scepticism among clinicians and others as to the value of "diagnosis by agglutinations," and by now it must be apparent that a laboratory diagnosis based on agglutinations alone is of no more value than a clinical diagnosis based on the single sign of splenic enlargement, at any rate in the case of inoculated subjects. Recovery of the organism from the blood, on the other hand, gives the most absolute evidence available, but here the possible fallacies are inconsiderable.

At a certain stage of the war it was circulated among forward units in France that too large a number of paratyphoid cases were arriving at a certain base labelled as trench fever. It was later shown, I believe, that the mistake was on the side of the base-unit, and that erroneous agglutination methods or conclusions were to blame. While confident that we were not consciously overlooking typhoid-group infections, at the suggestion of and in collaboration with Captain Adrian Stokes I decided to investigate more fully a series of cases of trench fever or P.U.O. in which there were observed any single clinical feature, such as a sustained pyrexia, splenic enlargement, diarrhoea, or any combination of such features, suggesting the possibility of a typhoid-group infection. The cases were detained in a C.C.S. and investigated by blood culture when the pyrexia was sufficient, by faeces-culture and agglutination tests; in most cases the agglutination tests were performed on two separate occasions with an interval of a few days, though full serial tests were admittedly not employed. Between 20 and 30 cases were so examined; in no case did I entertain any serious clinical suspicion that I was dealing with a typhoid-group infection, although the cases were the most suspicious I could at that time select; in no instance was a laboratory diagnosis of "typhoid-group" made. In view of these negative findings it seemed improbable that the far more atypical cases of transient, swinging, or relapsing fever could be typhoid-group infections, and I felt justified in my previous clinical differentiations, more particularly as I had the support of my

¹Topley, Platts, and Imrie: A Report on the Probable Proportion of Enteric Infections among undiagnosed febrile cases invalided from the Western Front since October, 1916. Med. Res. Council, Spec. Rep. Series 45, 1922.

pathological colleague, in concert with whom I had worked during a typhoid epidemic and for many months thereafter. When it is further remembered that there occur from time to time cases of clinically indisputable typhoid fever in which all laboratory efforts fail to achieve a diagnosis it seems more than ever obvious that we cannot rely on single non-specific tests, but rather must apply and combine all our clinical and laboratory energies in the search for a true diagnosis.

In 1915 there came under my care during the Belgian epidemic a refugee presenting all the classical features of a case of typhoid of moderate severity—a typical pyrexial curve with relapse; a characteristic pulse-temperature ratio; tumid abdomen; large spleen; rose spots; femoral thrombosis. Blood cultivations were repeatedly negative, and all attempts to cultivate from feces, urine, rose spots, and liver puncture by my colleague Captain O. Clarke failed; nor were there ever developed conclusive agglutination reactions. The fallacy of the non-specific test is again illustrated in the Wassermann reaction. There is a quite common tendency to regard a positive Wassermann in an obscure condition as absolute evidence that the condition itself is syphilitic. While the presence of the treponema in a lesion may be as nearly absolute evidence as is the recovery of *B. typhosus* from the blood, a positive Wassermann per se is no more a positive diagnostic proof than is a positive agglutination test per se.

In conclusion, I would urge, with Dr. Garrow, that the clinicians rather than the laboratory-workers have been at fault in their too casual acceptance of these tests, an insufficient study of their significance, and also in the needless loss of confidence in their own clinical ability which the discovery of more minute scientific methods seems to have engendered.

I am, Sir, yours faithfully,

J. A. RYLE.

The Warden's House, Guy's Hospital, Oct. 31st, 1920.

BRADFORD MUNICIPAL HOSPITAL.

To the Editor of THE LANCET.

SIR,—In addressing a gathering of medical and University Members of Parliament on Oct. 26th Dr. Addison spoke of the conversion of a Bradford Poor-law infirmary into a general hospital, adding that in what he was doing "he had obtained the views of the Bradford Division of the British Medical Association, and they agreed with the principles of the proposal as regards Bradford, with some modifications."

In the name of the executive committee of the Bradford Division of the British Medical Association I beg to state that this is quite erroneous. The Division was never asked for its opinion upon the principles of the proposal, but after the medical profession in Bradford had made through various channels several unsuccessful applications for information, on Sept. 30th, six months after the hospital had been taken over by the health authorities from the guardians, a lengthy document entitled, "Municipal General Hospital, St. Luke's. Report by the Medical Officer of Health," was sent to the executive committee of the Division, and they were asked in a covering note "whether your executive committee have any observations to make thereon." The committee carefully considered the detailed report and made several observations thereon, some of which were in the form of questions, but they certainly did not express any agreement with the principles of the proposal, nor were they invited to do so.

Over three months before this—on June 15th—a strong protest had been sent to the health committee in the form of a resolution worded as follows:—

"That in the interests of the public it is advisable and necessary that no arrangements should be made for the work of the municipal hospital as far as concerns the medical profession without free consultation with the profession of the district."

No notice was taken of this beyond a formal acknowledgment of receipt.

I am, Sir, yours faithfully,

W. N. WEST WATSON.

Hon. Sec., Bradford Division, British Medical Association.
Nov. 11th, 1920.

CÆLIAC DISEASE.

To the Editor of THE LANCET.

SIR,—The paper by Dr. Reginald Miller and others in your issue of Oct. 30th on the treatment of coeliac disease by bile-salts affords a valuable contribution to our knowledge of the symptom-complex first described by the late Dr. Samuel Gee under the name of "coeliac disease." The careful analyses of fat-content of the stools is of great interest. In their reference to the literature of the subject the authors make no mention of a joint paper by Dr. F. J. Poynton, Dr. D. N. Nabarro, and myself entitled "A Contribution to the Study of a Group of Cases of Chronic Recurrent Diarrhoea in Childhood," read at a meeting of the Medical Section of the Royal Society of Medicine, Oct. 28th, 1913, and afterwards published in the Society's Proceedings, Vol. VII., 1913, pp. 10-32, and reprinted in the *British Journal of Children's Diseases*, April and May, 1914, Vol. XI.

The title "coeliac disease" was purposely avoided in this paper, inasmuch as it seemed to us that the phenomenon was very possibly the result of alteration of intestinal function consequent on acute or chronic diarrhoea and not necessarily a disease sui generis. The administration of ox-bile in one of the group of nine cases described by us proved unsuccessful, reliance was chiefly placed on modification of diet on the lines followed by Dr. Miller. With his suggestion that he is the first to place on record the occurrence of "late rickets" in association with coeliac disease we cannot agree. One of our cases, a girl then aged 9 years, exhibited the characteristic deformities and skiagraphic changes of late rickets. It is of interest that she has again come under observation recently, now aged 17 years, is only 3 ft. 11 in. in height, while the rachitic deformity has progressed to such an extent that an osteotomy on the right femur for correction of genu valgum has had to be performed—the left femur having previously been accidentally broken. In all, four of the nine cases described by us showed rickets changes.

I am, Sir, yours faithfully,

RICHARD ARMSTRONG,

Physician to the Children's Department,
Charing Cross Hospital.

Nov. 3rd, 1920.

THE DIAGNOSIS OF MENTAL DEFICIENCY.

To the Editor of THE LANCET.

SIR,—Your annotation in THE LANCET of Nov. 6th on "What constitutes Mental Defect?" raises, as you very truly remark, a point of the utmost importance. It cannot be too clearly emphasised that although in mental deficiency the defect is a psychological one, yet the criterion by which this defect must be gauged is a social one; in other words, it is an incapacity of the individual to adapt himself to the requirements of society without external supervision or support. Ability to do this may be regarded as the essential quality of the "normal" mind, and it is by no means synonymous with ability to pass certain psychological tests. In addition to a general comprehension and capacity for ideation, it necessitates an ability to abstract, compare, and form judgments; to look ahead and make plan in accordance with those judgments; and to coordinate and control conduct in accordance with the plans so formed. A person who is lacking in these higher mental qualities, and is therefore mentally defective, may still have a high mental age as judged by tests, whilst one who fails in these tests may still possess the qualities of mind needed for adapting himself to the requirements of society. The explanation of this is that although the tests at present devised are useful as a means of grading normal children in certain respects, they fail to test those qualities of mind I have mentioned, and hence, by themselves, they cannot be relied upon for diagnosis. Even in the case of tests which most nearly reproduce social situations there is still a great difference between passing these in a laboratory and under the stress and strain of real life. To make use of an analogy, a person may qualify as a marksman

when shooting at a target on a range, but his practice may be very different when he is called upon to fire over the top of a trench at masses of an advancing enemy a hundred yards away. Experience shows that many defectives do well under the routine and discipline of a prison or other institution, but prove quite incapable of managing their affairs if called upon to face life on their own responsibility.

Unfortunately there is a tendency to regard mental defect from a much too restricted point of view, and to be too much influenced by one set of factors only. The eugenicist finds sufficient evidence in the presence of a morbid family history; the follower of Lombroso in stigmata of degeneracy; the sociologist in anti-social conduct; the psychologist in failure to pass certain tests. In the matter of diagnosis one might almost say that this generation asks for a sign, for an automatic register, an infallible penny-in-the-slot machine—there is no such sign.

Mental deficiency is a symptom of imperfect or arrested development of mind, which may not only be due to many causes, but which may be simulated by many conditions. The diagnosis of the milder degrees requires keen observation, ample experience, and very considerable medical knowledge; and whilst giving due attention to all the above data, there is no condition in which it is more necessary that the case should be considered in all its bearings. It is far from my intention to decry the use of psychological tests, of which, indeed, I make constant use, but the experienced physician will usually be able to come to a conclusion without any elaborate series of tests, and the inexperienced will probably fail in his diagnosis with them.

I am, Sir, yours faithfully,
A. F. TREDGOLD, M.D.

New Cavendish-street, W., Nov. 6th, 1920.

THE PRESENT POSITION OF MIDWIFERY.

To the Editor of THE LANCET.

SIR,—I have read with great pleasure and profit Mr. Victor Bonney's charming address at Norwich. But there is just one point which has puzzled me. After calling attention to the problem of intrinsic infection and enforcing the necessity of sterilising the birth area, he goes the length of teaching that in cases of modern mental delivery a pad soaked in one of the modern antiseptics should be stitched over the anus so as to exclude all bowel organisms. With one's mind fixed on the dangers of the anal region, one experiences a mental shock when he calls attention to Eardley Holland's teaching that the presentation and degree of dilatation of the cervix could be well detected by rectal examination. Which is the safer proceeding—to learn the presentation per vaginam or per rectum?

I am, Sir, yours faithfully,
J. PEREIRA GRAY.

Exeter, Nov. 7th, 1920.

THE HEREDITARY FACTOR IN TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—Apart from the theoretical interest of what is meant by the term "inherited diathesis," the recently published papers of Professor S. L. Cummins upon racial differences in susceptibility to tuberculosis raise a point of great importance. According to Professor Cummins's argument, the Native Labour Corps working in France succumbed very readily to tuberculosis because they were comparatively virgin soil, and thus acquired resistance is the essential factor in warding off the disease. Prevention of tuberculosis therefore depends not so much on environment, but on gradually building up the resistance of the individual by infection with doses of tubercle bacilli insufficient at any one time to cause actual disease. Professor Cummins concludes that immunity is the way by which prevention of tuberculosis must be achieved, and suggests the possibility of accomplishing this by means of artificial vaccination.

The practical application of this theory is both of extreme interest and of great importance to the State. If virgin soil is the factor of paramount importance in the predisposition towards tuberculosis, is it wise to

take great precautions in sterilising infants' foods? Would it not be well to accustom the baby to the tubercle bacillus by giving him a few with his feeds, or, at any rate, by not endeavouring by every means to eliminate the organism and prevent its access to the body. This, of course, is no new proposition, but it appears to be the logical conclusion of Professor Cummins's argument.

It would be interesting if Professor Cummins would state his views on this subject—we know that 6.5 per cent. of the 943 samples of milk examined in London last year contained tubercle bacilli; would this be a suitable means of immunising the children of London, or would the risk of mass infection be too great?

I am, Sir, yours faithfully,
G. E. BEAUMONT.

Weymouth-street, W., Nov. 5th, 1920.

TRANSPPOSITION OF VISCERA.

To the Editor of THE LANCET.

SIR,—A few months ago I discovered an interesting case of transposition of viscera during a routine inspection in one of our elementary schools. The case was that of a boy of 12 years whose apex beat and heart sounds were found on his right side. Percussion showed liver dullness on the left. He was X rayed at the Dundee Royal Infirmary by Dr. George Miller and a skiagram of his thorax was obtained which showed the heart and liver transposed. During the screening of the abdomen the fundus of the stomach was distinctly visible on the right side, and mouthfuls of a bismuth meal could be traced to the lower part of the stomach, well to the right of the middle line. The boy is perfectly healthy and has had no illness except measles in early childhood.—I am, Sir, yours faithfully,

CATHERINE KIRK,
Assistant M.O. to Dundee Education Authority.

Nov. 6th, 1920.

"THE RIGHT TO STRIKE."

To the Editor of THE LANCET.

SIR,—I was extremely amused by the views of the Medical Secretary on my acting, the more so as I find I was apparently representing an official who in real life is represented by himself! He must forgive me therefore if I do not attach too high a value to an opinion which it would appear you did not ask him for, and which he becomes so sensibly confused over in that he mixes acting and authorship in a woeful mess. For after saying that I am "a futile person," which he thinks is not the author's intentions, he condemns me, "after listening to my inanities" (the italics are mine), to death, apparently for speaking the author's words! Or does he think I make them up as I go along? Of one thing I am sure, and no doubt it occurred to him at once, and that is that he could have done it much better than I, and I hope this may solace him in his quieter moments.—I am, Sir, yours faithfully,
THE ACTOR.

Savage Club, Nov. 4th, 1920.

•• We do not quite understand our correspondent's letter. The communication to which he alludes was written by the Medical Secretary, while the criticism to which he takes exception referred to the actor who played the part of solicitor. Of course, the more innane the author's conception, the more does innanity become a virtue in the actor. We are sure our medical correspondent did not think he was criticising the acting in his recommendation that such a character as was presented would do well to shoot himself.—ED. L.

WANDSWORTH BOROUGH MATERNITY HOME.—This home was visited by H.M. the Queen on Nov. 6th. It has been handed over to the borough council, free of debt, as a memorial to the officers and men of the borough who died on service. It has been equipped on modern lines and will be open to patients in a short time. The accommodation available consists of 22 beds, in wards of from one to five beds. The home will be maintained by the borough council, partly by patients' fees, ranging from £1 to £4 a week, partly out of the rates, and partly by grants from the Ministry of Health.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Rear-Admiral Sir E. Hill, K.C.M.G., C.B., C.V.O., Director-General of the Medical Department of the Royal Navy, to be Surgeon Vice-Admiral.

ROYAL ARMY MEDICAL COLLEGE.

Lieut.-Col. J. W. West, C.M.G., R.A.M.C., to be a Professor, vice Col. E. M. Fletcher, C.B., C.D.E., D.S.O., K.H.S.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. C. T. Samman is placed on retired pay.
Lieut.-Col. S. G. Butler retires on retired pay, and is granted the rank of Colonel.

T. St. J. Wilkinson, late Major, S. Afr. M.C., to be temporary Major.

Capt. T. E. Osmond retires, receiving a gratuity.
The undermentioned relinquish their temporary commissions on ceasing to be employed with the Union Imperial Service Contingents, and are granted the rank of Major: Capt. W. D. Miller, J. Evans; Temp. Capt. A. H. Bell (retains the rank of Captain).

Capt. T. H. Howitt to be temporary Lieutenant.
Officers relinquishing their commissions:—Temp. Capt. (acting Major) B. J. Collingwood (granted the rank of Major). Temporary Captains retaining the rank of Captain: J. R. Howitt, W. N. Leak, J. B. Mason, A. S. Webley, E. R. Tweed, J. McLaw (on ceasing duty with South African Native Labour Corps), H. Joslen, J. F. Blackett, A. Campbell, W. B. Honey, C. E. Hannigan, F. E. Beardon, H. F. Sheldon, T. Marlin. Temp. Hon. Capt. R. Halsted (retains the honorary rank of Captain). Temp. Lieut. T. W. Smart (retains the rank of Lieutenant).

South African Medical Corps.

The undermentioned relinquish their temporary commissions on ceasing to be employed with the Union Imperial Service Contingents, and are granted the rank of Major: Capt. W. D. Miller, J. Evans; Temp. Capt. A. H. Bell (retains the rank of Captain).

SPECIAL RESERVE OF OFFICERS.

Capt. P. J. Corcoran resigns his commission and is granted the rank of Captain.

The undermentioned Captains relinquish their commissions and retain the rank of Captain:—E. Keen, P. M. Neighbour, D. A. Dyer, J. Scott, A. A. Prichard, J. O. P. Smith, J. P. Jenkins, J. F. Campbell, J. H. Mackay, J. W. Young, W. Young, P. Fortias, C. V. Brambridge, A. Fowler, C. Simpson.

TERRITORIAL FORCE.

Capt. W. Blackwood resigns his commission and is granted the rank of Lieutenant-Colonel.
Capt. (acting Major) A. Rankine relinquishes the acting rank of Major on ceasing to be specially employed.

Capt. H. F. Wilkin and L. A. Harwood to be Majors.
2nd London Sanitary Corps: Capt. (acting Major) R. O. Sibley relinquishes the acting rank of Major on vacating appointment as Deputy Assistant Director of Medical Services.

INDIAN MEDICAL SERVICE.

Temporary Lieutenants to be temporary Captains:—Jalindranath Mukherji, Hari Das, R. Mullen, Daulat Mangharial Lala, Jotindra Chandra Sinha, Achuth Narayana Natesa Pankar.
To be Lieutenants: E. T. N. Taylor (Temp. Capt. I.M.S.), Ajab Singh Gurewal (Temp. Capt. I.M.S.), A. V. Lopes (Temp. Capt. I.M.S.). Temp. Capt. A. D'Silva, Hari Prasanna Mukerjee, Hari Dhan Banerji, Manmatha Nath Pal, Balajipati Sessa Chalam relinquish their commissions.
The King has approved the resignation of Major Sarraj Bhatnagar Mehta.

FOREIGN DECORATIONS.

French.

Légion d'Honneur.—Commandeur: Lt.-Gen. Sir T. H. J. O. Goodwin, K.C.B., C.M.G., D.S.O., K.H.S. Officer: Hon. Maj.-Gen. Sir G. M. Irwin, K.C.M.G., C.B. (ret. pay). Chevalier: Col. R. J. Blackham, C.B., C.M.G., C.I.E., D.S.O.; Lt.-Col. J. P. Decarie, C.M.G.

Croix de Guerre.—Capt. R. Burgess, D.S.O., M.C., R.A.M.C. (T.F.) 2nd award; Lt.-Gen. Sir C. H. Burchell, K.C.B., C.M.G., K.H.S.; Capt. O. G. Donnan, Can. A.M.C. (2nd award); Temp. Capt. (acting Maj.) T. A. Lawder, R.A.M.C. (2nd award); Temp. Capt. F. P. Montgomery, M.C., R.A.M.C. (2nd award); Capt. J. A. A. Pare, M.C., Can. A.M.C. (2nd award); Capt. (acting Maj.) P. J. Ryan, M.C., R.A.M.C. (2nd award); Maj.-Gen. Sir H. N. Thompson, K.C.M.G., C.B., D.S.O. (2nd award); Temp. Capt. (acting Maj.) F. B. Winfield, R.A.M.C. (2nd award).
Médaille d'Honneur avec Glorieux (en Vermeil).—Maj. J. A. Lawder, Can. A.M.C.; Temp. Capt. A. Sandison, R.A.M.C.; Temp. Capt. A. H. Style, R.A.M.C.

Italian.

Order of the Crown of Italy.—Cavaliere: Lt. R. T. F. Barnett, R.A.M.C. (T.F.).
Croce Medica della Salute Publica.—Brav. Lt.-Col. J. G. Bell, D.S.O., R.A.M.C.; Col. J. Y. F. Fennell, C.B., C.M.G.; Temp. Capt. W. Parker, M.C., R.A.M.C.; Lt.-Col. J. C. Robertson, C.M.G., C.I.E., G.B.E., I.M.S.; Lt.-Col. J. W. West, C.M.G., R.A.M.C.

Nepal.

Order of the Star of Nepal.—3rd Class: Lt.-Col. (acting Col.) T. H. Fowler, C.I.E., I.M.S.; Lt.-Col. J. W. Grant, I.M.S.

CLOSURE OF THE DARTMOUTH (DEVON) COTTAGE

HOSPITAL.—The committee of this institution, owing to the difficulty of obtaining a suitable resident staff, has closed the hospital. A meeting of the inhabitants will shortly be convened to decide as to the future of the charity.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 3RD.

Treatment of Loss of Memory Cases.

Mr. AUBREY HERBERT asked the Secretary for War whether ex-Servicemen who from shell shock or some other cause had lost their memory during the war would be provided with suitable accommodation in homes and not in lunatic asylums.—Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied: Special accommodation is provided by my Department for any ex-Servicemen suffering from loss of memory due to his service in the late war, but should the malady unfortunately develop into certifiable insanity the patient can no longer be detained in a Ministry institution, but must be transferred, in accordance with the present Lunacy Laws, to the care of the Board of Control.

Maintenance of Pauper Lunatics.

Lieutenant-Commander HILLMAN YOUNG asked the Minister of Health whether, in attempting an equitable readjustment of existing Government subventions in relief of rates, he would take into consideration the inadequacy of the 4s. allowance in respect of the maintenance of pauper lunatics.—Dr. ADDISON replied: Yes, Sir.

Public Health (Tuberculosis) Bill.

Dr. ADDISON presented a Bill "to make further provision with respect to arrangements by local authorities for the treatment of tuberculosis." The Bill was read a first time.

THURSDAY, NOV. 4TH.

MINISTRY OF HEALTH BILL.

Dr. ADDISON, in moving the second reading of the Ministry of Health (Miscellaneous Provisions) Bill, said that it dealt for the most part with matters arising out of post-war problems of local authorities. Many of the statements that had been made concerning the Bill were quite ill-informed, and had not arisen from a close examination of the measure. Having outlined the proposals of the Bill with respect to housing the eight honourable gentlemen went on to deal with Clause 10. During the war, he said, they found a large number of men suffering from shell shock and similar affections became mentally disordered for a short time. A system was set up whereby suitable cases had treatment in mental hospitals. In Clause 10 provision was made for the continuance of this form of treatment under very stringent safeguards. It was vital that this class of men should escape the stigma and disabilities of being classed as lunatics. In the first place the clause provided that the persons so treated must be suffering from mental disorder which was incipient in character and of recent origin, which, of course, excluded early cases. The next thing it did was to limit the treatment in any individual case to six months. Safeguards were necessary, as it would clearly stultify the whole effort if any irregularities occurred. The places where persons were to be treated were to be certified, examined, and visited. Persons could only receive treatment on the certificate of two duly qualified medical practitioners; they could only be received on their own consent; and they could discharge themselves at any time by giving notice in writing. The scheme did not apply only to ex-Servicemen. They did not anticipate that it would require more than the existing staff.

Mr. RENDALL: Does this clause mean that the right honourable gentleman does not propose to ask for the assistance of the Lunacy Commissioners in inspecting these places?

Dr. ADDISON said he did not say that. It might be done with some of their staff or assistants, but at the present time he saw no reason to add to the staff. The proposal with regard to hospitals had received the most criticism. One headline said "Hospitals on the Rates." That was not the proposal of the Bill. At no time in our history, and certainly not after the experience of the war, was it wise or practicable to ignore a really urgent public necessity. Nothing could be more shortsighted for those who had a real interest in the ordered progress of society than to play into the hands of their opponents by doing a thing of that kind. The fact was that up and down the country the accommodation in our voluntary hospitals was, unfortunately, quite insufficient to meet the public need. Every one would admit that it was undesirable that the voluntary hospitals should come upon the rates. So far from having any desire to bring voluntary hospitals on the rates he had taken active steps for some months past to endeavour to keep them off, and he thought that those efforts for the present and for the immediate future had been successful. During the five years 1913 to 1918 there was in the case of the voluntary provincial hospitals an excess of expenditure

INTELLIGENCE.

paragraphs (a) and (c) of the clause should be altered so that the authority should be limited to taking over under proper agreements all existing Poor-law hospitals, and that this power should not extend to taking over voluntary hospitals. This also shut out the establishment of additional hospitals.

Two Classes of Objections.

The objections—the first professional and the second lay—were of two classes. The first class was that of the medical profession, and the second class was that of the lay public. The first class was that of the medical profession, and the second class was that of the lay public.

INTELLIGENCE.

paragraphs (a) and (c) of the clause should be altered so that the authority should be limited to taking over under proper agreements all existing Poor-law hospitals, and that this power should not extend to taking over voluntary hospitals. This also shut out the establishment of additional hospitals.

Two Classes of Objections.

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Voluntary Contributions to Hospitals.

Rejection of the Bill Moved.
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Rejection of the Bill Moved.

Earl WINTERTON, in moving the rejection of the measure, said that his first objection to the Bill was that it dealt with half a dozen different subjects. It dealt with the question of lunacy, and proposed most formidable changes in the existing law, while it removed one of the principal safeguards which the subject now had under the Lunacy Laws. It also proposed much more wide and sweeping changes than the right honourable gentleman would admit in the relations of local authorities to voluntary hospitals. He thought that Clause 10, which dealt with treatment for incipient mental disorder, would prove one of the most contentious and controversial clauses in the Bill. Under Section 315 of the present Lunacy Act a penalty was imposed upon anyone detaining a mental case for profit without complying with the necessary procedure of judicial investigation prescribed for the protection of the individual. Under Clause 10 of this Bill all that safeguard was swept away, and the Minister was given practically carte blanche to override the Lunacy Act. He did not know why the Ministry of Health should override the Lunacy Commissioners. Personally, he did not think that its attempts to deal with other questions and to deal with other reforms would lead them to believe that it would be any more successful in this. Many people who had studied the question held the view to protect the Lunacy Acts were not sufficiently strong to protect the subject from possible mishandling or doctors, who might be hands of those, whether relatives or doctors, who might be ill-disposed towards him. What made this Bill all the more dangerous was that under the Lunacy Acts only a certified person could be detained or treated as a lunatic, whereas under this clause it would be possible with very small safeguards for, say a neurasthenic, who was not familiar with the law, to be incarcerated without any appeal. Many authorities who had taken a lifelong interest in the treatment of these unfortunate people afflicted with mental delusions objected strongly to the clause as it stood, and they had supplied him with a memorandum in which they urged that what was needed was not such institutions as were proposed by the Bill, but the provision of cheerful

hospitals run on a purely hospital footing, not for profit, but philanthropically and without detention.

Captain ELLIOT: Does the noble lord propose that these hospitals should be run at the expense of the rates?

Earl WINTERTON said he did not agree with the proposals of the Ministry. He did not believe that the voluntary effort of the country on behalf of the hospitals was anything like exhausted. He was not going into the question of voluntary hospitals versus State hospitals, but he should like to ask whether, in any locality in which the local authority made a contribution to a voluntary hospital, and in which—as happened unfortunately to be almost universally the case—the rates were somewhere near 20s. in the £, anyone could contend for a moment that the people who would otherwise give voluntary contributions to that hospital would not refuse on the ground that they were being rated for the purpose of what hitherto they had done voluntarily. They heard a good deal of generalisation from the right honourable gentleman, but they never heard how he proposed to carry on in the future—whether the voluntary system was to continue or whether the whole hospital system of the country was to be carried on by the State or by the local authorities. If Dr. Addison was anxious to see the voluntary system maintained, he should give it a fair chance, and it would not have a fair chance if local authorities were encouraged to give subscriptions out of the rates. The right honourable gentleman spoke as if he were in a position to dictate to hospitals as to the way they should go. So long as the voluntary hospitals were voluntary they proposed to manage themselves. They did not propose to be managed either by the State or by the British Medical Association.

Sir H. ORAIE, in seconding the motion for rejection, said he agreed with Lord Winterton and with his medical friends with respect to the importance of the medical provisions of the Bill, but surely a subject of this sort involving points of great importance to the individuals and points of delicacy on which the House had to be advised by the most mature and careful medical authority could not be dealt with in a few lines of one clause. Yet, in effect, they were told that if they did not take it as a small almost infinitesimally minute portion of one Bill they were opposing the whole matter and refusing to move forward. That was an unjust argument, and led to the destruction of all sound Parliamentary proceedings. Even the worm must turn, and this was a Bill which, looking to his past when he helped Mr. Bonar Law in opposing similar socialistic projects, he could not now support. It increased unduly the power of the bureaucracy, fettered unduly their freedom of action, was contrary to the whole genius of our people, and launched the country into an expenditure of a ruinous character.

More Safeguards Necessary.

Sir DONALD MACLEAN said he hoped that the House would not give in anything like their entirety the powers asked for by the Ministry in Clause 10. Those powers ought to be limited specifically. It was a very serious inroad on what had hitherto been very carefully safeguarded by that House. People knew what had happened under the safeguards of the certificates of two medical men, and if it were removed any handling of this subject by Government or other department by way of extension of existing powers ought to be most carefully examined before any extension of powers was granted. The horror of sending men into lunatic asylums or mental hospitals often did the greatest possible damage to them. He suggested that the operation of this clause might be limited and not have any general application. In Clause 11 the most important and entirely novel powers were sought. He thought the Committee would do well to examine the proposals with scrupulous care. It was quite intolerable that with the extraordinary demand for hospital treatment immensely increased by the war, and with the lack of the normal increase of accommodation which would have been provided if there had been no war, anyone should suffer. This question of the prevention and cure of disease requires immediate attention. It was ridiculous that while there was a voluntary hospital in a town or district overcrowded and with a long waiting list, there should at the same time be some hundreds of yards or half a mile away a well-equipped institution not fully utilised. He had been to many of the Poor-law infirmaries and the great majority of them compared very favourably with most voluntary hospitals. He was glad that the power was given to county councils to set up new hospitals was entirely abandoned. Let them face the fact, however, that to grapple adequately with the development of preventive and curative treatment throughout the country voluntary effort alone did not meet the case.

Lord H. CECIL thought that the hospital question should have been dealt with on a larger scale and in a separate Bill if dealt with at all. As regards the proposals on the subject of lunacy, he thought there was great need for the reforms which were touched on in the clause and for many other reforms affecting lunacy, but the great reform

that was needed was that the people who were confined by reason of mental deficiency or derangement should pay their expenses and no more, and it should not be lawful to make a profit out of any form of disease, and certainly not out of mental infirmity, because the tendency was so overwhelming not to cure the patient, but to treat him very kindly and to keep him where he was. This clause more fully touched in a most half-hearted way the whole subject, and so far as it did touch it he thought it did so in a most dangerous way. It was with reluctance that he would vote against the Bill, but he was sure that it would do an enormous amount of good to the public service if they rejected the Bill of any Bill of that kind.

Mr. G. LOCKER-LAMPSON said the Minister of Health was the most lavish, the most uncontrollable, and the most inveterate spender of public money on the Government Bench. This Bill was the commencement of a series of the most expensive and far-reaching so-called social reforms the country had ever seen. Before they agreed to this scheme they ought to know what were the right honourable gentleman's intentions with regard to the report which suggested a complete alteration of the Poor-law, and also to the report of the Consultative Council which dealt with the whole future conditions of medical service. If Earl Winterton divided against the Bill he would support him in the Lobby.

Sir R. ADKINS said, as one with some inside knowledge being associated with local authorities, and also being chairman of the Consultative Council at the Ministry of Health, he did not agree with Mr. Locker-Lampson that the proposals in the Bill were merely, or at all, preliminary to, or had any necessary connexion with, large schemes of public health such as that developed in the famous Medical Report of Lord Dawson's Committee, or the other scheme to which the honourable Member referred. Most of them were perfectly willing to go slowly in this matter. The great scheme of Lord Dawson's Committee was a counsel of perfection, and his view of public health was exclusively a medical point of view. If the country were as wealthy as before the war he said frankly that a good deal of that experiment ought to be tried, but as the country was to-day there should not be any attempt at a larger expenditure in the present state of the national finances. It was because a large part of the Bill was wanted, and was economical and necessary, that he could not vote against the second reading. The debate was adjourned.

Regional Boards and Neurasthenic Patients.

Mr. ORMSBY-GORE asked the Minister of Pensions whether he had recently been receiving complaints regarding the treatment by regional boards of cases of ex-soldiers suffering from neurasthenia; whether he was aware that men suffering from periodic outbreaks of acute neurasthenia and collapse had been marked fit for work by regional boards and, on attempting to work in machine shops, had proved a danger to themselves and their fellow workers; and whether he would issue instructions to all regional directors to take greater care in dealing with these cases, and to follow up such men's medical history more carefully.—Mr. MACPHERSON replied: Complaints regarding the treatment of neurasthenics by medical boards are occasionally received and have in every instance proved on investigation to be without foundation. I have no information that would in any way support the suggestion in the second part of the question, but if my honourable and gallant friend will let me have particulars of any specific cases he has in mind I shall be glad to inquire into them at once. Instructions have already been issued to medical boards pointing out the difficulties attending the examination of neurasthenics; and the members of the special boards which examine these cases are selected, not only for their knowledge of this particular disease, but also for their tact and consideration in dealing with this type of pensioner.

The Period of Pension Assessment.

Captain LOSERY asked the Minister of Pensions if he was aware that the present practice of calling up disabled soldiers before incessant boards was causing great irritation and frequent injustice; and if the time had come to instruct boards to fix pensions for periods of not less than 12 months, and in cases of permanent disablement, finally.—Mr. MACPHERSON replied: Medical boards are already instructed to make assessments for as long periods as possible; and a recent analysis of the position showed that over 80 per cent. of the current assessments were not due for revision for at least 12 months. Permanent assessments are given so soon as the disability has clearly reached a final and stationary condition.

Medical Officers Recognition.

Mr. ALFRED T. DAVIES asked the Minister of Pensions whether he had considered the practicability of recognising qualified medical men who were at present attached to ex-Service men's organisations.—Mr. MACPHERSON replied: I have considered this proposal, but I am not prepared to accept it.

Economy and Reorganisation at Pensions Ministry.

Mr. ALFRED T. DAVIES asked the Minister of Pensions whether there had been any reorganisation of the office of his Ministry during the past three months; whether any economy in personnel or cost had resulted; and, if not, whether it was proposed to undertake any reorganisation within the coming three months.—Mr. MACPHERSON replied: There has been no general reorganisation of the Ministry during the past three months, but the question of effecting economies is under constant and careful consideration. Apart from the staff employed in hospitals and institutions which are concerned with the care and treatment of disabled men, and represent additional work which has been, and is being, gradually taken over from the War Office, the staff of the Ministry has been decreased during the past three months by 506, and further reductions are in prospect.

Meat-supplies and Public Health.

Major WHEELER asked the Food Controller why, in setting up the Departmental Committee to consider and report on the legislative and administrative measures necessary to secure adequate protection for the health of the people in connexion with the slaughter of animals and the distribution of meat for human consumption in England and Wales, no practical agriculturalists had been put on; and whether he would add to the Committee persons having practical agricultural knowledge.—Dr. ADDISON replied: Questions primarily affecting the agricultural interests did not appear to me to come within the scope of this Committee's deliberations. The Minister of Agriculture is, however, represented on the Committee, and I have no doubt that the Committee will be glad to receive any material evidence bearing on the questions covered by their terms of reference which agricultural organisations desire to submit. I do not think at this stage of its proceedings it is practicable to add fresh members to the Committee.

Condensed Milk Standard.

Mr. GRATTAN DOYLE asked the Minister of Health what progress had been made by the Committee set up to inquire into the determination of a standard for condensed milk; if he would take immediate steps to prevent the importation or manufacture of condensed milk of low standards of fat to the detriment of the consumer if the Committee had yet reported; and, if not, would he state the reason for delay.—Dr. ADDISON replied: I have received the Committee's report, and I am considering the question of issuing regulations to give effect to their recommendations.

Campaign against Typhus.

Mr. KILEY asked the Prime Minister what was the substance of the Report of the campaign against typhus which was presented by the Secretary-General of the League of Nations Council at the meeting just held at Brussels.—Mr. BALFOUR (Lord President of the Council) replied: I am sure it would be quite impossible, and, if possible, quite improper, to attempt to summarise the documents embodying the results arrived at by the Council of the League of Nations at Brussels. Those documents will be published in full by the "Official Journal" of the League of Nations when that comes out. No doubt before that time arrives we in this country will have received from the Secretariat authentic copies of all these documents, and as soon as they arrive I propose that they should be placed in the Library of the House of Commons. Whether in addition it will be necessary or desirable to publish them separately as a Parliamentary Paper it is hardly for me to determine, but from the point of view of the League of Nations there is no objection to any degree of publicity which can possibly be given to these documents, but they cannot be summarised. The removal of the headquarters staff from London to Geneva may cause some delay, but I do not think it will be very long.

Purchase of Spirits in Small Quantities.

Lieutenant-Colonel Sir FREDERICK HALL asked the Prime Minister whether he was aware that in pre-war days persons requiring a small amount of spirituous liquor were able to purchase the same and take it to their own homes for consumption; whether, according to the present regulations, it was impossible for a small consumer to purchase anything less than a bottle of whisky or brandy unless furnished with a medical certificate; and whether, considering that promises had been made to do away with the restrictions of the Defence of the Realm Acts, steps will at once be taken to rescind this regulation in order that the liberties of the people in this matter might again be restored to them.—Mr. FISHER (Minister of Education) replied: The facts are substantially as stated in the first two paragraphs of the question. The regulation referred to is part of a code with which the Government have repeatedly said it is undesirable to interfere fundamentally pending further provision by Parliament on the general subject.—Sir F. HALL: Will the Committee which is now sitting have this question before them, and, if so, when does the right

honourable gentleman expect that any report will be presented to the House?—Mr. FISHER: I understand that the reference to the Committee is restricted to the question of Sunday closing.—Sir F. HALL: Are we to take it that it is to be a permanent regulation that a man shall not be allowed to go to a public-house to purchase what he wants and take it home for his own consumption?—Mr. FISHER: There is no permanent regulation. We hope that Parliament will soon have an opportunity of reviewing all these regulations.—Mr. MACQUISTEN: Is the right honourable gentleman aware that there is a growing practice of people clubbing together, buying wholesale, and dividing it with one another, and is not that an abuse?—No answer was given.

TUESDAY, NOV. 9TH.

MINISTRY OF HEALTH BILL.

The debate on the second reading of the Ministry of Health (Miscellaneous Provisions) Bill, and on the motion for rejection of the Bill by Lord WINTERTON, was resumed.

Lieutenant-Colonel NATHAN RAW said the Bill was one of first-class importance to the community. As a medical man who had a fairly large experience in the treatment of lunacy he welcomed Clause 10, which in its general principles was a much-needed reform, though some modifications might have to be made in it in Committee. Prevention was better than cure. He could assure the House that a great number of people are certified as lunatics and sent into ordinary asylums who need never go there, and who might have been spared the stigma of being certified as insane by a few weeks or months of treatment such as was indicated under this clause. As the law stood at present this was not possible, at least, for the working classes. A great many poor women suffered from mental aberration as a result of childbirth. They required very careful supervision and very special nursing. This could not be done in a cottage. The only thing to do was to send the case to an asylum. Other cases arose out of alcoholism, pneumonia, influenza, and Bright's disease. Most of those people could make a complete recovery in the course of a few weeks or months if they could have the advantage of treatment which was provided under the clause. War had shattered the nervous system of many thousands of our soldiers. Very few were insane. They were suffering from neurasthenia and nervous collapse, which in a few weeks or months might be cured. He should like to see special mental wards attached to all general hospitals in which the cases of soldiers suffering from shell shock and mental disturbance and in the early stages of mental disease could be treated. The clause was entirely voluntary. In some cases the patient would not be able to give his consent, and he suggested that in those cases the nearest relative might act. He also suggested that the recommendation of one medical man should be sufficient. Dealing with Clause 11 Colonel RAW said the Poor-law had provided a great mass of hospital treatment for the people of this community which ought to have been undertaken by the health authorities of the country. Poor-law infirmaries were now out of date, not because they were inefficient, but on account of the vast improvement in the social and economic conditions of the people. Local authorities were setting up thousands of beds for the treatment of tuberculosis in sanatoriums and for the treatment of venereal diseases. They were also providing maternity wards so that the hospitals on the rates were already in existence to the extent of about three-fourths of the total hospital accommodation. To sum up, 300,000 beds to-day were maintained at the ratepayer's expense, and 40,000 beds were provided and maintained by charitable institutions. The splendid services of these voluntary hospitals must on no account be curtailed, but must be encouraged. It was not true to say that the voluntary hospitals had failed. They had only failed because the public had failed to support them. This could be remedied by this Bill, which gave the local authorities powers to assist them. He hoped that the right honourable gentleman would insist that in all general hospitals in future beds should be reserved for maternity cases. He estimated that out of 95,000 beds at present in Poor-law infirmaries only about 30,000 would be suitable for the requirements of a modern hospital, so that when the Poor-law was abolished there would be a considerable shortage, which would have to be made up. He sincerely regretted that the Minister of Health was not insisting on the subsection which gave powers to the health authorities to erect and maintain hospitals, because without that subsection the provision was a makeshift. Something would have to be done in the very near future to provide, maintain, and equip more hospitals in this country. The alternative to that was that all the present voluntary hospitals should be considerably extended. He thought it would be wise if all voluntary hospitals were enlarged, or even doubled in size, and given a subsidy to assist them in providing more beds. Every person who used a hospital should pay according to his means. Those who could not

pay should be maintained in municipal hospitals at the expense of the State. The health of the nation was much too precious and too serious a matter to be left to private effort. The present hospital system in England was inadequate and out of date. At the General Election he pledged himself that they were going to make a C3 nation into an A1 nation. He could not understand the action of any Member who rejected these valuable reforms on the ground of expense.

Lieutenant-Colonel FREMANTLE said part of Clause 10 was very difficult to support, and yet if they really went into the actual cases which it was meant to meet it was impossible to resist it. The London County Council felt that it was a contribution, and only a small contribution, to the solution of the problem of dealing with the cases of mental deficiency and disorder in their early stage. The main objection to the whole question from the professional standpoint was that they were dividing what was essentially one. The problem of mental disorder ought to be treated as a whole. As regarded Clause 11 he hoped that, if there were to be contributions to hospitals from the rates, at the same time there would be an equivalent grant from the Treasury. He entered a plea against the economists. The question of economy must be raised in relation to other Bills. Here they were fighting a warfare quite as deadly as was fought in the late disastrous war and at an expense very very small indeed compared with the cost of the war.

Dr. ADDISON, replying to the debate, said he was unable to find in the Bill any proposals which would lead to the pouring out of money like water, which had been so often referred to in the debate. At the same time he was most willing to join with Members when the Bill was in Committee in avoiding any liability which public interest did not want. As to the proposal to enable local authorities to contribute to the support of voluntary hospitals he had a list of 34 such bodies which promoted and passed through Parliament private Bills to enable them legally to make such contributions. In a statement calling attention to the condition of the London Hospital Lord Knutsford mentioned that 900 people were waiting to come into the hospital, and there were 200 empty beds in Whitechapel Infirmary. The reason people did not go to the Poor-law institutions was that the Poor-law authorities could only give relief to persons who were destitute. He could not ignore the needs of the people.

Major MOLSON said as a medical man he was very sorry to have to oppose the Bill. His chief objection was the very severe financial liabilities which the right honourable gentleman was placing on the country. They had been asked to try and convert a C3 population into an A1 population, and he thought by curative and preventive medicine and public health measures this might have been done. The Minister of Health had been burdened with measures which might have been carried out by private enterprise.

The motion for rejection of the Bill was negatived by 156 votes to 76 and the Bill was then read a second time.

Army Medical Officers Placed on Half Pay.

Captain ELLIOT asked the Secretary for War whether he was aware that several Regular Army Medical Service officers with distinguished war records had recently been placed on half pay against their desires; that junior ranks were meanwhile forbidden to resign their commissions on account of the shortage of medical officers; that one officer who was promoted colonel for service in the field and subsequently received the D.S.O., the C.M.G., the C.B., and the French Croix de Guerre, with two palms and star, had been placed on half pay six years before the age limit for his rank; and whether he would institute an inquiry into these cases.

Sir A. WILLIAMSON (Parliamentary Secretary to the War Office) replied: The procedure on reduction of establishment as laid down in Article 308 of the Royal Warrant for pay, &c., has been followed in these cases. It would explain that the number of colonels in the Army Medical Service is largely in excess of the establishment, whereas among the junior ranks there has been a shortage owing to the large number of temporary officers demobilised and to the demand for medical officers for service overseas. Until recently it was, therefore, impossible to permit the retirement of such officers, but this is now no longer the case.

Washington Maternity Convention.

Mr. GEORGE BARNES asked the Minister of Health if he was yet in a position to make any statement of the Government policy regarding the Washington Convention re maternity; and if, in any case, he would submit the Convention to the judgment of the House.—Dr. ADDISON replied: The Ministry of Health have reported on this matter; but certain questions have arisen on points which are outside the jurisdiction of the Ministry of Health, and the Government are not yet in a position to make a statement.—Mr. BARNES: May I ask for a reply to the last part of the question, whether the right honourable gentleman will sometime submit the Convention to the judgment of this House, and is he aware of the extreme impatience of

women's organisations in this country in consequence of the long delay in bringing this matter before the House?—Dr. ADDISON: I know there is a good deal of impatience on the part of the people concerned as to an opportunity for discussion, and perhaps my right honourable friend will put down a question on the subject to the Leader of the House.

Maternity and Child Welfare Act, 1918.

Mr. ROBERT YOUNG asked the Minister of Health if he would state how many local authorities had and how many local authorities had not made arrangements under Section 1 of the Maternity and Child Welfare Act, 1918.—Dr. ADDISON replied: The following local authorities have made arrangements under Section 1 of the Maternity and Child Welfare Act, 1918: (a) All the 29 metropolitan borough councils (including the Common Council of the City of London); (b) all the 82 county borough councils in England and Wales; (c) all the 62 county councils in England and Wales, except the London County Council, which has no powers under the Section, and the Glamorganshire County Council; (d) the councils of 306 of the 1703 sanitary districts in England and Wales, including most of the large non-county boroughs and urban districts. Of the remaining 1397 sanitary districts 1390 are included in county councils' schemes, and are covered by arrangements made under such schemes. The seven districts in which no arrangements have been made or are being made are small urban and rural districts.

Medical Insurance Service.

Mr. HANCOCK asked the Minister of Health if he would give the names of the four medical supervisors that had been recently appointed, and would give the names of their respective districts and the amount of salary that was paid to each of them.—Dr. ADDISON replied: The four divisional medical officers appointed in connexion with the new Medical Insurance Service are as follows: Dr. A. Fulton, M.B., North-Western Division, net inclusive salary £1600 a year; Dr. C. H. Milburn, O.B.E., M.D., North-Eastern Division, £1600; Dr. H. J. Neilson, C.B.E., M.D., Southern Division, £1600; Dr. R. E. Crosse, M.R.C.S., Metropolitan and Eastern Division, £1600.

Medical News.

UNIVERSITY OF OXFORD.—The Radcliffe prize, value £50, will be awarded by the Master and Fellows of University College upon the report of the examiners, provided a sufficiently deserving memoir be submitted for a memoir, or papers, embodying research in any branch of medical science comprised under the following heads: Human anatomy, physiology, pharmacology, pathology, medicine, surgery, obstetrics, gynaecology, forensic medicine, hygiene. The prize is open to all graduates of the University who have proceeded, or are proceeding, to a medical degree in the University. Candidates, at the date of appointment, shall not be Radcliffe Fellows; but the provision that candidates shall not have exceeded 12 years from the date of passing the last examination for the degree of B.A. is upon this occasion so far suspended as to enable any graduate, who was eligible during the years of the war (1915, 1917, 1919), to be eligible for the next ensuing award (1921). No memoir for which any university prize has been already awarded can be admitted to competition, nor may the prize be awarded more than once to the same candidate. Candidates are required to send their memoirs to the assistant registrar on or before Dec. 1st, 1920.

UNIVERSITY OF LIVERPOOL.—A Diploma in Medical Radiology and Electrology has recently been instituted. A six months' course of post-graduate work is required before a candidate can enter for the examination, and instruction in physics constitutes part of the course. Mr. C. Thurstan Holland has been appointed a university lecturer in charge of the department of radiology.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Final Examination of the Conjoint Board, held from Oct. 12th to 27th, the following candidates were approved in the undermentioned subjects, but are not eligible for diplomas:—

Medicine.—H. N. Andrews and G. K. Arthur, St. Bart.'s; S. H. Barnott, Cambridge and St. Thomas'; Martha Florence Barritt, Manchester; D. E. Bedford, Middlesex; Margaret Gladys Best, St. Mary's; E. Bhatia, St. Mary's; L. J. Billingham, St. Bart.'s; I. Collier, St. Mary's; A. G. Donaldson, St. Thomas'; London; E. W. Evans, Birmingham; and H. T. Edwards, London; E. W. Evans, Birmingham; and P. Freeman, Westminster; Katherine Mary Lovell Gamson, Univ. Coll.; P. P. Gandhi, Bombay; and St. Mary's; H. H. Gleave, Leeds; B. Gould, London; Katherine Mary Harbottle, St. Mary's; H. Hulme, Middlesex; Violet Mary Jewson, Royal Free; J. G. Johnstone, St. Bart.'s; D. E. Jones, Cardiff and St. Bart.'s; D. M. Jones, Univ. Coll.; G. W. Karunaratna,

Cambridge and Middlesex; M. Korn, London; F. G. Latham, Liverpool; F. Lawrence, London; J. H. Le Brasseur, Cambridge and St. Bart's; Anna Gwenllian Mary Lewis and C. A. Lindup, Univ. Coll.; H. D. Llewellyn, St. Bart's; C. G. Martin, Cambridge and St. Bart's; A. Mikhail, Guy's; Sybil Grace Mocatta, St. Mary's; B. S. Mole, Bombay and Middlesex; T. L. Ormerod, St. Bart's; E. F. Peck, Liverpool and St. Bart's; Mary Winifred Pitt-Lewis, St. Mary's; Ruth Wade Plimsoil and Betsy Porter, Royal Free; C. S. C. France, St. Bart's; S. A. H. Qureshi, Univ. Coll.; P. L. Richardson, Guy's; Margaret Scott-Moncrieff, Univ. Coll.; N. L. Shoorcy, Bombay and London; W. F. Skaffe, Oxford and St. Bart's; E. Tagoe, Univ. Coll.; H. B. Taylor, St. Mary's; L. J. Timings, Birmingham; T. W. Turner, Guy's; Mary Gwendolen Vaughan, King's Coll.; J. F. Weakley, Univ. Coll.; Agnes Edle Westwood, St. Mary's; D. C. Williams, London; Muriel Burton Williams, Royal Free; and Greta Isabel Yeoman, St. Mary's.

Middlesex.—T. Adam, St. Bart's; D. R. Ainsworth, Manchester; Doris Elizabeth Alcock and K. H. N. Attaullah, Royal Free; O. A. Baker, Univ. Coll.; F. G. L. Barnes, St. Bart's; K. M. Bharucha, Bombay; J. R. S. Bowker, Middlesex; J. G. B. Brass, St. Louis, U.S.A.; C. S. Cloake and E. C. T. Clouston, London; Ivy Collier, St. Mary's; I. J. Corbett, London; A. M. Cotes, Leeds; P. Couacoud, Guy's; J. G. D. Currie, St. Thomas's; J. R. Dow, Charing Cross; Eileen Dowling, Liverpool; C. F. T. East, Oxford and King's Coll.; M. H. Eld and G. W. Elkington, Guy's; E. St. C. Gainer, Middlesex; J. H. Gann, London; H. H. Gleave, Leeds; Marjorie Pearl Christine Greene, Royal Free; W. R. W. Haight, Toronto; B. O. Hancock, Birmingham; Katharine May Harbord, Royal Free; Marjorie B. Hubert, St. Mary's; E. R. Hughes, London; S. H. G. Humphrey, St. Thomas's; A. V. Johnson, Cambridge and Birmingham; J. T. Jones, Guy's; M. Kapill, Middlesex; Mary Elizabeth Kennedy, London; A. Kotbi, St. Mary's; W. Laing, St. Bart's; Anna Gwenllian Mary Lewis, Univ. Coll.; C. G. Lewis, Birmingham and Univ. Coll.; C. J. Lewis, Birmingham; W. B. A. Lewis, Cambridge and St. Bart's; Margaret Longbottom, Royal Free; O. E. J. McOstrin, Univ. Coll.; P. Nadian, Liverpool; Henrietta Alexandrina Clark Main, St. Mary's; R. Mikhail, Charing Cross; Anna Miller, Royal Free; Sybil Grace Mocatta and Iva Clare Marion Molony, St. Mary's; J. C. R. Morgan, Westminster; L. S. Morgan, St. Bart's; J. B. G. Muir, Middlesex; R. E. Murray, Calcutta; H. W. L. Nichols, London; Helen O'Brien, St. Mary's; M. M. Ostrowick, Edinburgh; A. Pain, Middlesex; E. Philbin, Manchester; F. A. Phillips, Cambridge and St. Thomas's; W. S. Ratnavale, London; H. L. Rayner, King's Coll.; A. M. Reid, Liverpool; J. Reith, Univ. Coll.; J. J. Rowlands, London; Margaret Scott-Moncrieff, Univ. Coll.; A. Sebba, London; S. Sedaros and A. H. Shielwell, Guy's; M. Shernovitch and Doris Kathleen Shuttleworth, Leeds; O. L. C. Sibley and A. I. Silverman, Middlesex; H. L. Slaughter and L. Smalley, St. Thomas's; J. A. Stephens, Leeds; L. W. Studdy, Durham; S. Suvansa, St. Bart's; R. O. Swaine, Middlesex; C. P. Thomas, Westminster; G. D. C. Tracey, Cambridge and St. Thomas's; Gladys Mary Wauhope, St. Andrews and London; Beryl Wiseman, Calcutta and London; and J. E. Wright, Guy's.

Burgess.—C. H. Andrews, St. Bart's; H. J. Bhatia, Bombay; J. L. McK. Brown, St. Bart's; Mary Burfield, St. Mary's; C. L. C. Burns, St. Thomas's; D. S. Chamberlain, King's Coll.; L. C. F. Chevens, St. Thomas's; G. I. Griffiths, Liverpool; A. B. Hacking, Middlesex; A. Y. Ibrahim, St. Thomas's; Mary Elizabeth Kennedy, London; Helen O'Brien, St. Mary's; T. Laura Pires, Charing Cross; Olive Gwendoline Potter, London; O. A. L. Roberts, St. Mary's; Mary Frances Roope and A. R. Roushdy, Charing Cross; C. I. Schiff, London; M. Shernovitch, Leeds; E. E. A. Spencer, Charing Cross; H. Spiby, Univ. Coll.; Y. A. Sumbul, St. Mary's; J. S. Thomas, London; Madeline Hilda Jane Umpleby, St. George's; W. G. D. H. Urwick, St. Bart's; Gladys Mary Wauhope, St. Andrews and London; E. A. Widdowson, Ottago; H. L. Willey, St. Thomas's; and Muriel Burton Williams, Royal Free.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.—At the stated business meeting of President and Fellows of the College, held on Nov. 5th, Dr. Joseph Theodore Wigham and Dr. John Speares were admitted Fellows of the College, and Dr. A. F. Bernard Shaw was admitted a Member and Licentiate.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The annual meeting of the Faculty took place on Nov. 1st. Among the office-bearers appointed were the following:—President: Dr. A. Freeland Fergus. Visitor: Dr. W. G. Dun. Treasurer: Mr. George McIntyre. Honorary Librarian: Dr. E. H. L. Oliphant. Councillors: the President, the visitor, the treasurer, the honorary librarian, Dr. James A. Adams (Representative to the General Medical Council), Mr. J. McGregor Robertson, Mr. J. Forbes Webster, Mr. R. M. Buchanan, Dr. Ebenezer Duncan, Dr. W. R. Jack, Mr. Henry Rutherford, and Dr. A. K. Chalmers.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next quarterly meeting of the Association will take place on Thursday, Nov. 25th, at 11, Chandos-street, Cavendish-square, W., under the presidency of Dr. W. F. Meuzies, at 2.45 p.m. On the morning of the same day and at the same place there will be a meeting of the Handbook, Educational, and Parliamentary Committees, while the Council will meet from 12 noon to 12.30 p.m. and 1.30 to 2.45 p.m. There are many new members for election, and members are reminded that from Jan. 1st, 1921, the annual subscription will be raised to £1 11s. 6d.

MEDICAL MAYORS.—Dr. A. J. Rice-Oxley has been elected mayor, for the second year in succession, of the Royal Borough of Kensington.—Mr. E. A. Farr, J.P., M.R.C.S. Eng., L.R.C.P. Lond., who has held the office of medical officer of health, Andover, for 26 years, has been elected mayor of Andover for the ensuing year.

ROYAL ANTHROPOLOGICAL INSTITUTE.—The Huxley Memorial Lecture of the Institute will be delivered on Tuesday, Nov. 23rd, in the lecture room of the Royal Society, Burlington House, W., at 8.30 p.m., by Mr. A. C. Haddon, Sc.D., F.R.S., upon Migrations of Cultures in British New Guinea.

ROYAL SOCIETY OF ARTS.—The arrangements for the winter session include a lecture on Colour-vision and Colour-blindness by Dr. F. W. Edridge-Green on Nov. 24th, and three Cantor Lectures on Micro-organisms and Some of their Industrial Uses, by Mr. A. Chaston Chapman, F.R.S., on Nov. 29th and Dec. 6th and 13th respectively. The lecture hour in all cases is 8 p.m.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.—A special post-graduate course will be held at the Prince of Wales's General Hospital, Tottenham, London, N., from Dec. 6th to 18th. Those wishing to attend should apply not later than Dec. 2nd to the Dean at the hospital or to the Secretary of the Fellowship of Medicine at 1, Wimpole-street, London, W. 1.

LONDON DERMATOLOGICAL SOCIETY.—A meeting of this society will be held at 4.30 p.m. on Nov. 16th, at St. John's Hospital, 49, Leicester-square, London. Clinical cases will be shown by Dr. W. Griffith, Dr. Dennis Vinrace, Dr. M. G. Hannay, Dr. W. K. Sibley, Dr. E. J. D. Mitchell, and Dr. S. R. Kapoor, and the Presidential Address, on Some Autoinfections, will be delivered by Dr. R. Prosser White.

THE COUNCIL OF THE ROYAL SOCIETY.—The following have been recommended by the President and Council of the Royal Society for election to the Council:—President: Professor C. S. Sherrington. Treasurer: Sir David Prain. Secretaries: Mr. W. B. Hardy and Mr. J. H. Jeans. Foreign Secretary: Sir Arthur Schuster. Other members of Council: Mr. J. Barcroft, Sir William Bragg, Dr. A. W. Crossley, Professor J. B. Farmer, Sir Walter Fletcher, Professor A. Fowler, Dr. A. C. Haddon, Sir Robert Hadfield, Sir Thomas Heath, Professor J. Graham Kerr, Professor H. Lamb, Sir William Leishman, Dr. S. H. C. Martin, Professor J. W. Nicholson, Mr. R. D. Oldham, and Professor W. P. Wynne.

DEPTFORD COUNCIL FOR YOUTH.—Surgeon Commander K. Digby Bell, R.N., will lecture on Recreation in the Navy during the War and its Application to Civil Life on Friday, Nov. 19th, at the Town Hall, Deptford. The lecture is an outcome of Commander Bell's address to the Royal Society of Medicine, published in THE LANCET of Jan. 31st last, on a scheme for National Physical Education, and has been arranged by the Recreation Committee of the Deptford Council for Youth. Admission is free, but tickets for reserved seats at 1s. each may be obtained from Dr. Rosa Ford, the honorary secretary, 21, Jerningham-road, New Cross, London, S.E. 14.

SAVE THE CHILDREN FUND.—A meeting on behalf of this fund was held at Whitlands College, Chelsea, recently, when Professor F. F. Roget gave an address on Child Welfare. He pointed out that the child is international rather than national, and the life of the child could be roughly divided into three periods, those of the family, the school, and industry. During school life the State stepped in to develop the hygienic conscience of the child. In industrial life, unfortunately, the prevailing economic system was pressing the blood out of human life through overwork. Child life should not be wasted in industry. The child welfare section of the Red Cross, added Professor Roget, was prepared to supply all requirements dealing with child welfare. Miss Geraldine Cooke followed with a speech on the work of the Save the Children Fund, the fundamental basis of which, she said, was that every child should be given a fair chance. Eighteen months ago two women were impressed by the extreme misery in Vienna and conceived the project of raising £1000. The work spread to all parts of the stricken areas, and there were now 300 active branches in Great Britain and an international organisation working in close touch with the International Red Cross. There were Save the Children Fund associations working in France, Germany, Italy, Sweden, Switzerland, and Spain, and others in process of formation in Turkey, Armenia, Serbia, and Bulgaria. There had been lately a strong feeling that this work, though created for an emergency, should become truly international and that a project for helping British children should be realised. The Fund had therefore put its organisation at the disposal of this country.

Dr. Noel Bardswell has been appointed a member of the consulting staff of the King Edward VII. Sanatorium.

The dinner of the West London Hospital and Post-Graduate College, which was to have been held to-day, Saturday, Nov. 13th, has been postponed.

HORSLEY MEMORIAL.—At a meeting of the executive committee, held on Nov. 10th, it was decided to issue at once, and as widely as possible, an appeal for a fund to found a Research Scholarship or Lectureship.

RONTGEN SOCIETY.—A general meeting will be held on Thursday, Nov. 18th, at 8.15 p.m., in the Physics Lecture Theatre, University College, Gower-street, London, W.C., when Dr. Robert Knox will deliver the presidential address.

WELLHOUSE HOSPITAL, BARNET (HERTS.).—The inaugural ceremony will take place on Tuesday, Nov. 16th, when Viscount Hampden, Lord-Lieutenant of Hertfordshire, will open the hospital.

THE CLAIMS OF EX-SERVICE DOCTORS.—At the meeting of the Aberystwyth Town Council on Tuesday last a communication was received from the Ministry of Health enclosing copy of a letter which Dr. Addison had directed to be forwarded to the local board of guardians respecting the recent appointment of a medical officer to fill the vacancy caused by the death of Dr. Bonsall. The town guardians unanimously supported Dr. Abraham Thomas, who served in the war from 1914 to 1919, but the county guardians went dead against him and appointed Dr. J. A. Rees. The letter stated:—

"Dr. Addison desires me to draw the attention of the Guardians to the circular letter, dated 11th Sept., 1919, with regard to claims of competent ex-service men to appointments under local authorities, and to state that notwithstanding the prolonged good services with which the Guardians credit Dr. Rees, he feels the Guardians would be better advised to reconsider the nomination which they have made. The country has a right to expect that efforts will be made to find a suitable ex-service candidate for such a vacancy, and it must be recognised that public bodies had a special responsibility in this matter."

Dr. Thomas acted for Dr. Bonsall during the latter's illness, and has resided in the town all his life. The proceedings at a public meeting held on Sept. 30th protesting against the rejection by the Aberystwyth Guardians of Dr. Thomas's claims were reported in *THE LANCET* of Oct. 9th (p. 770).

SOCIETY OF MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The annual general meeting of the Fellows and Members will take place at the College, Lincoln's Inn-fields, W.C., on Thursday, Nov. 18th, at 3 p.m., when the following resolutions will be sent in on behalf of the society:—

1. That this thirty-fifth annual meeting of Fellows and Members shall affirm the desirability of electing Members to direct representation on the Council of the College, which (as now constituted) only represents those Members who also hold the Fellowship; and that it does so in order that the constitution of the Council of the Royal College of Surgeons of England shall be in keeping with modern ideas of true representation. This will be moved by Dr. J. Brindley-James, the President of the society, and Dr. F. W. Collingwood.

2. That as the Royal College of Surgeons is composed of about 11,570 persons, of whom over 16,000 are engaged in general practice, the annual meeting requests the President and Council to nominate at least two Members in general practice to represent the interests of general practitioners in the management of College affairs.

Dr. S. C. Lawrence, Dr. A. Keppel Barrett, and others will speak thereon.

The annual subscription to the society is 2s. 6d., or a life payment of £1 1s. can be sent to the honorary secretary, Mr. Sidney C. Lawrence, 61, Wellington-road, Bush Hill Park, Enfield.

ALVAREGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—It is announced that the next award of this prize, amounting to about \$250, will be made on July 14th, 1921, provided that an essay deemed worthy of the prize shall have been offered. Each essay must be sent without signature, but must be plainly marked with a motto and must be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. No Alvarega prize for 1920 was awarded. Essays intended for competition must be typewritten and may be upon any subject in medicine, but must not have been published. If written in a language other than English they should be accompanied by an English translation and should be sent to the Secretary of the College, 19, South Twenty-second Street, Philadelphia, Pa., U.S.A., so as to arrive on or before May 1st, 1921.

PROPOSED BRUSSELS CONGRESS OF MILITARY MEDICINE AND CHEMISTRY.—The Sanitary Service of the Belgian Army is organising a congress of military medicine and chemistry to be held in Brussels in June, 1921, to which all doctors and chemists who served in the allied or neutral armies are invited. The following subjects will be placed on the programme: (1) The lessons of the war in the treatment of fractured limbs. (2) The fight against venereal disease and tuberculosis in the army. (3) Chemical and physiological study of gas in warfare; sequelae of its action on the organism; importance of these sequelae in estimating incapacity. (4) General organisation of medical services in armies. Those wishing to attend the congress should communicate, before April 1st, 1921, at latest, with the secretary-general, Dr. Jules Voncken, Military Hospital, Liège, Belgium. Any reports sent in should be accompanied by a short summary.

BRISTOL MEDICAL SCHOOL AND GUARDIANS' HOSPITAL.—At the Southmead Hospital, to which the Bristol guardians recently appointed a consulting staff, demonstrations on selected cases will be held every Saturday morning by Dr. J. A. Nixon, consulting physician to the hospital, for senior students of the Bristol Medical School.

CREMATION IN MANCHESTER.—The annual report of the Manchester Crematorium, Ltd., states that the total number of cremations since the opening in 1892 is 3187. For the last five years the numbers have been as follows: 1916, 149; 1917, 199; 1918, 163; 1919, 233; 1920, 219. The decrease during last year is attributed to the fall of the death-rate. A balance of £572 is recorded for this year.

A RADIUM HOSPITAL FOR MANCHESTER.—As briefly announced in *THE LANCET* last week, Sir Edward and Lady Holt have made a timely and generous gift to the Manchester Radium Institute of Nelson House Nursing Home, which is in close proximity to the Royal Infirmary and Eye Hospital, as a hospital where patients requiring treatment by radium can be treated and housed. The hospital is freehold and will be handed over completely furnished and ready for use. Manchester does not share alone in this gift, for besides the Royal Infirmary the boards of management of the following hospitals will also participate with the Radium Institute: Salford Royal Hospital, Ancoats Hospital, St. Mary's Hospital for Women, Northern Hospital, Hospital for Diseases of the Skin, Christ Hospital, and Burnley Infirmary. This will be the first hospital in the kingdom used exclusively for treatment by radium; moreover, since there are 30 beds in the new institute, patients will not be distributed amongst eight different institutions, as at present, though it will still be possible to treat patients at other hospitals if required. Manchester has spent already nearly £50,000 for its stock of radium; up to the present the institute has been self-supporting, through the fees paid by private patients. With the opening of the new Radium Hospital and the upkeep of beds the public will have to help if they are to reap the full benefit from this magnificent gift.

LIVERPOOL MEDICAL INSTITUTION.—The first meeting of the Pathological Section of this institution was held on Nov. 4th, with Dr. J. E. Gemmell, the President, in the chair. Dr. E. Cronin Lowe read a note on Metastases in Bone from a Case of Renal Hypernephroma, illustrated by coloured drawings. The secondary growths occurred in one humerus and both femora, in each case causing spontaneous fracture. Death occurred 11 years after the initial symptom of hæmaturia. Unfortunately the post-mortem was only a partial one and the primary growth was unobtainable. The secondary growths, however, showed the typical arrangement of cells as seen in a renal tumour. Dr. A. D. Bigland and Dr. P. M. Bigland communicated a paper on Cerebro-spinal Fluid Examinations with special reference to the cerebrospinal fluid upon 180 cases. After a brief allusion to the history of the subject the authors discussed the procedure of lumbar puncture. They advocated the sitting posture, the use of a White-Jeanselme needle, and the mid-line insertion between the third and fourth lumbar vertebrae. The patient should remain recumbent for 24 hours after the puncture to avoid or lessen leaking of spinal fluid, which appears to be the cause of the resulting headache. Several tests were demonstrated, including Lange's colloidal gold reaction, and tables were shown giving the different results of the tests in the various types of neuro-syphilis; great stress was laid upon the importance of relying only upon the combined findings of all the tests. The authors deduced the following results from their work, basing their conclusions upon post-mortem findings and clinical facts. They stated that: (1) No case having a similarity to the usual forms of neuro-syphilis should be regarded as such without laboratory proof; (2) no case with a positive serum W.R. or with a history of syphilis, together with nervous symptoms, should be diagnosed as neuro-syphilis until proved so; and (3) a negative W.R. in the blood does not exclude neuro-syphilis.

ROYAL MEDICAL BENEVOLENT FUND GUILD.—It is not necessary to remind our readers of the work which the Royal Medical Benevolent Fund has done, and is doing, in providing annuities and caring for the necessitous relatives of those medical men who in the practice of their profession have lost health or life before being able to make adequate provision for their dependents. Nor is it necessary to speak of the visiting and other personal services given by the Ladies' Guild of the Fund, which provides clothes and other necessities for those beneficiaries who are in need, and assists also in the education and technical training of the younger generation. This Guild has for ten years been a powerful auxiliary to the main beneficent work of the Fund, first under Lady Tweedy, and now under the active secretaryship of Lady Fripp, with Lady Wavertree as chairman. In order to put the Guild on a sound financial basis an effort is being made to raise £10,000 for the educational branch, and a similar sum is needed for the opening of a hostel or home of rest for the aged, and a holiday and convalescent home for the children. With these objects in view a special matinee will be given at His Majesty's Theatre, Haymarket, London, on Nov. 19th, when a first-class programme will be provided under the patronage of Her Majesty the Queen. Among others who have promised assistance are Mr. Gerald du Maurier, Mr. Owen Nares, Mr. George Grossmith, Mr. Nelson Keys, Miss Winifred Emory, Miss Fay Compton, and Miss Gladys Cooper. The prices for seats range from 1s. 3d. to £3 3s., and tickets may be obtained from the Marchioness of Crewe, 38, Berkeley-square; Lady Birkenhead, 32, Grosvenor-gardens; Lady Wavertree, Sussex Lodge, Regent's Park; or Lady Fripp, 19, Portland-place.

Appointments.

ALEXANDER, W., has been appointed Medical Officer of Health for Heywood.
 LEWIS, C. J., D.Sc., M.D., F.R.C.P. Edin., Associate Professor of Public Health in the University of Birmingham.
 MCGURDON, J. R., M.B., Ch.B. Edin., Medical Superintendent at Harefield Sanatorium, Middlesex.
 PRINSON, J. P., M.D. Durh., an Assistant Bacteriologist at the Lister Institute of Preventive Medicine.
 PRYNN, H. V., M.R.C.S., L.R.C.P. Lond., Chief Medical Officer to the General Post Office.

Vacancies.

For further information refer to the advertisement columns.

Bedford County Hospital.—H.S. and Asst. H.S. £180 and £150.
 Belfast, Royal Victoria Hospital.—Res. Pathologist. £200.
 Bethnal Green Metropolitan Borough.—M.O.'s for Maternity and Child Welfare. 14 guineas per session.
 Birmingham City Education Committee, Remedial Exercises Clinic, John Bright-street.—Orthopaedic S. £3 3s. for each occasion.
 Birmingham City Maternity and Child Welfare Schemes.—Female Asst. M.O.H. £300.
 Birmingham General Hospital.—Res. Anesth., H.P., and H.S. £100. Also two H.S.'s. £125.
 Bradford Royal Eye and Ear Hospital.—Aural S.
 Bristol Royal Infirmary.—Hon. Asst. P.
 Canning Town Women's Settlement Hospital, Buliam-street, Plaistow, E.—Female Res. M.O. £150.
 Carshalton, Surrey, Queen Mary's Hospital for Children.—Junior Asst. M.O. £515 6s.
 Central London Ophthalmic Hospital, Judd-street, St. Pancras, W.C.—Junior H.S. £50.
 Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Registrar.
 Colonial Service.—M.O.'s for West African Medical Staff, Government Service in Malaya, East African Protectorates, West Indies (including British Guiana), Fiji, and the Western Pacific, &c.
 Devon County Hospital.—Asst. Sch. M.O. £500-£600.
 Doncaster Royal Infirmary and Dispensary.—Asst. H.S. £225.
 Durham University College of Medicine, Newcastle-upon-Tyne.—Assistant in Department of Bacteriology. £600.
 East London Hospital for Children and Dispensary for Women, Shadwell, E.—Path. and Registrar. £400. Two Asst. P.'s.
 Eday, Orkney.—M.O. £10 a week.
 Elizabeth Garrett Anderson Hospital, Tuston-road.—Female H.P., Obstet. Asst., and two H.S.'s. £50 each. Anesth. £10 10s. Dent. S.
 Evelina Hospital for Children, Southwark, S.E.—H.S. £160.
 Federated Malay States Colonial Service.—Pathologist to Medical Research Institute. £1050.
 Finsbury Metropolitan Borough.—Asst. M.O.H. £550.
 Great Northern Central Hospital, Heliway-road, London, N.—Clin. Asst. £1 1s. per session.
 Greenwich Metropolitan Borough.—M.O. for Maternity and Child Welfare. £400.
 Guildford, Royal Surrey County Hospital.—Third H.S. £150.
 Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Res. M.O. £500. Dent. S. 100gs. Anesth. 75gs.
 Hull Royal Infirmary.—Asst. V.D. and Cas. O. £250. Also Asst. H.S. £150.

Jodhpore, Rajputana, India, Jaswant Female Hospital.—Medical Woman. Rs. 450 per mensem.
 Leamington Spa, Warwickshire, Leamington, and South Warwickshire General Hospital. Res. H.P. or H.S. £200.
 Leeds City.—Asst. M.O.H. for Maternity and Child Welfare. £600.
 London County Mental Hospital Service.—Sixth and Seventh Asst. M.O.'s. £320.
 Londonderry City and County Infirmary.—Asst. H.S. £150.
 London Lock Hospital, 91, Dean-street, W.—Hon. S.
 London Temperance Hospital, Hampstead-road, N.W.—Res. M.O. £200.
 Macclesfield General Infirmary.—Res. H.S. £200.
 Manchester, Hulme Dispensary, Dale-street, Stretford-road.—Res. M.O. £300.
 Manchester Royal Infirmary.—Three Asst. M.O.'s. £35.
 Manchester, St. Mary's Hospitals for Women and Children.—H.S. £100.
 Merthyr Tydfil Co. Borough.—Asst. Sch. M.O. and Asst. M.O.H. £500.
 Miller General Hospital for South-East London, Greenwich, S.E.—H.P. £150.
 Milroy Lectures on State Medicine and Public Health.—Milroy Lecturer.
 Monmouthshire Education Committee.—Asst. M.O. £500.
 Mount Vernon Hospital for Tuberculosis and Diseases of the Lungs and Heart, Northwood, Middlesex.—Asst. P.
 Newcastle-upon-Tyne and Northumberland Sanatorium for Consumption, Barrasford, North Tyne.—Med. Supt. £650.
 Newcastle-upon-Tyne, Royal Victoria Infirmary.—Hon. Surgical Registrar.
 Northallerton, North Riding of Yorkshire County Council Education Committee.—Asst. Sch. M.O. £500.
 Norwich, Norfolk and Norwich Hospital.—H.P. and Fourth H.S. £200 each.
 Nottingham General Dispensary.—Res. S. £300.
 Plymouth Borough.—Asst. M.O.H. £500.
 Pontypridd Urban District Council.—Female Asst. M.O. £550.
 Prison Medical Service, Home Office, London, S.W.—M.O. £300.
 Putney Hospital, Lower Common, Putney, S.W.—Res. M.O. £150.
 Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Asst. Res. M.O.
 Radnorshire County Council.—County M.O. and Sch. M.O. £700.
 Reading, Royal Berkshire Hospital.—H.S. £200.
 Rochester, Kent, St. Bartholomew's Hospital.—Jnn. Res. M.O. £150.
 Rochford Union Institution and Children's Home.—Temp. M.O. £7 7s. per week.
 Rotherham Hospital.—Jun. H.S. £150.
 Royal College of Surgeons of England.—Election to Court of Examiners.
 St. Mary's Hospital, Paddington, W.—Medical Registrar. £200.
 St. Peter's Hospital, Henrietta-street, Covent Garden, W.C.—Anesth. £25.
 Salford Royal Hospital.—Cas. H.S. £150.
 Shanghai Municipal Council.—Asst. Health O. 6000 taels.
 Sheffield Royal Infirmary.—H.S. £150.
 Stoke-on-Trent County Borough.—Asst. Tuberc. O. £400.
 Surrey, County of.—County M.O.H. £1200.
 Swansea County Borough.—Asst. M.O. £500.
 Todmorden Borough.—M.O.H. and Sch. M.O. £650.
 Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £300.
 West Bromwich and District Hospital.—Res. Asst. H.S. £200.
 West-End Hospital for Nervous Diseases, 73, Welbeck-street, W.—Dermatologist and Asst. P.
 West London Hospital, Hammersmith, W.—Asst. Anesth.
 Weston-super-Mare Hospital.—H.S. £155.
 The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Leyburn, Kirkwall, Bellingham, and at Hull.

Births, Marriages, and Deaths.

BIRTHS.

EDMOND.—On Nov. 2nd, at St. John's Hill, Shrewsbury, the wife of W. S. Edmond, F.R.C.S., of a daughter.

MARRIAGES.

MCGEE-STRETCH.—On Sept. 31st, at St. Patrick's Cathedral, Melbourne, Australia, by the Rev. Gavan Duffy, Dr. Henry McGee, of Brighton, Melbourne, to Lillian, elder daughter of Samuel Stretch, of Caulfield, Melbourne.
 MELCHER-Lewis.—On Nov. 3rd, at St. Neot Church, Cornwall, Thomas Walter Melchur, M.R.C.S., L.R.C.P., to Gertrude Mary Code, eldest daughter of Canon and Mrs. F. E. Lewis, of St. Neot Vicarage, Cornwall.
 UDALL-TUGWELL.—On Nov. 3rd, at St. Aldate's Church, Oxford, Edward Hugo Udall, M.R.C.S., L.R.C.P., to Alice, daughter of the late Canon Tugwell and of Mrs. Tugwell, of Frenchay-road, Oxford.
 WATSON-ADENEY.—On Nov. 3rd, at Monksdown Parish Church, Co. Dublin, S. Ernest Watson, M.D., B.Ch., B.A.O., to Violet Steele Adeney, daughter of W. E. Adeney, D.Sc., and Mrs. Adeney, Burnham, Monksdown, Co. Dublin.

DEATHS.

GOOCH.—On Nov. 1st, at his residence, Rosel, St. Andrews-road, Paignton, James Wyard Gooch, M.R.C.S., L.R.C.P. (late of Windsor).
 HARRISON.—On Nov. 7th, at his residence, Lincoln, Charles Harrison, M.D., D.P.H., J.P., aged 82.
 HEMMING.—On Nov. 3rd, at Lansdowne-place, Hove, Charles Hemming, M.D., of Ovingdean, in his 91st year.
 N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1 Wimpole-street, W.

Tuesday, Nov. 16th.

GENERAL MEETING OF FELLOWS: at 5 P.M.

Ballot for Election to the Fellowship.

MEETINGS OF SECTIONS.

Tuesday, Nov. 16th.

SECTION OF THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.

Papers:

Major Acton, I.M.S.: Pharmacological Actions of the Main Cinchona Alkaloids, illustrating their Isomeric Relationships.
Dr. W. E. Dixon: Quinine Derivatives as Local Anesthetics.
Dr. Warren Crowe: The Vaccine Treatment of Rheumatoid Arthritis.

Dr. W. E. Dixon and Dr. D. Cow: Pituitrin-like Body in the Cerebro-spinal Fluid, and Hormones which Cause its Appearance therein.

SECTION OF PATHOLOGY: at 8.30 P.M.

Communications:

Dr. H. Schütz: Blood Grouping with Dried Material and its Medico-legal Bearing.
Dr. J. A. Murray: Autopsy after Exposure to Hot Air.
Dr. Arthur Powell: A Flagellate Organism persisting for Six Years in otherwise Sterile Urine.

Wednesday, Nov. 17th.

SECTION OF HISTORY OF MEDICINE: at 5 P.M.

Papers:

Mr. James Berry: A Public Latrine of Roman Imperial Time.
Dr. Major Greenwood: Galen as an Epidemiologist.

Thursday, Nov. 18th.

SECTION OF DERMATOLOGY: at 5 P.M. (Cases at 4.30 P.M.)

Cases:

Dr. Arthur Whitfield: Case for Diagnosis.
Dr. H. W. Barber and Dr. C. Marshall: (1) Dermatitis Scrofulosa; (2) Cases of Psoriasis treated by Danysz's Method.

Friday, Nov. 19th.

SECTION OF OTOTOLOGY: at 5 P.M. (Cases at 4.45 P.M.)

Cases and Specimens will be shown by—

The President (Sir Charles Hullancie), Mr. Sydney Scott, Mr. Mollison, Dr. Dan McKenzie, and Mr. Colledge.
Mr. Mark Howell will show an Ear Syringe.

Paper:

Sir William Milligan: Chronic Catarrhal Otitis Media—Some Thoughts and Suggestions.

SECTION OF ELECTRO-THERAPEUTICS: at 8.30 P.M.

Discussion on "Radio-Therapy."

Opening Papers:

Professor S. Russ: Physics.
Dr. Batten: Superficial Therapy.
Dr. Finzi: Deep Therapy.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.

Monday, Nov. 15th.—2 P.M., Dr. Sisson: Diseases of Women.

5 P.M., Lecture:—Mr. MacDonald: Tubercle of the Genital Organs.

Tuesday.—2 P.M., Mr. Banks Davis: Diseases of the Throat, Nose, and Ear. 5 P.M., Lecture:—Mr. T. Gray: Peritonitis (its Surgical Aspects) (1) with Particular Reference to Tubercle Rheumatic and (2) Allied Affections. (Lecture II.)

Wednesday.—2 P.M., Mr. Addison: Operations. 5 P.M., Lecture:—Dr. Owen: Organic Disease of the Heart. (Lecture II.)

Thursday.—2 P.M., Mr. B. Harman: Eye Department. 5 P.M., Special Lecture:—Mr. S. Edwards: Points in Rectal Surgery open to all medical practitioners.

Friday.—10 A.M., Dr. H. Hayton: Dental Department. 5 P.M., Lecture:—Dr. Burnford: Tuberculin in Diagnosis and Treatment.

Saturday.—10 A.M., Dr. Arthur Saunders: Medical Diseases of Children. 12 noon, Mr. Sinclair: Surgical Diseases of the Abdomen.

Daily.—10 A.M., Ward Visits. 2 P.M., In-patient, Out-patient Clinics and Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Monday, Nov. 15th.—2 P.M., Dr. A. J. Whiting: Medical In-

ternia. 2.30 P.M., Mr. J. B. Banister: Gynaecological.

4.30 P.M., Practice in Pregnancy.

Tuesday.—9.45 A.M., Lieut.-Col. R. H. Elliot and Mr. N. Fleming: Eye Cases and Operations. 2.30 P.M., Mr. C. H. Hayton: Throat, Nose, and Ear. 4.30 P.M., Cases of Nasal Obstruction.

Wednesday.—2 P.M., Mr. C. H. Hayton: Throat Operations. 5.30 P.M., Dr. W. J. Oliver: Skin. 4.30 P.M., Mr. N. Fleming: Selected Eye Cases.

Thursday.—2 P.M., Mr. N. Fleming: Eye Out-patients. 3 P.M., Mr. T. H. C. Benlans: Pathological Specimens.

Friday.—2.30 P.M., Dr. C. E. Sander: Children's Disease. 3 P.M., Mr. R. Gillespie: Cases of Hernia.

Saturday.—3 P.M., Mr. H. W. Carson: Surgical In-patients.

Daily.—11 A.M., Mr. T. H. C. Benlans: Bacteriological Department. 2 P.M., Operations, In-patient, Out-patient Clinics, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C.

Monday, Nov. 15th.—2.30 P.M., Out-patient Clinic: Dr. Collier.

3.30 P.M., Lecture:—Mr. Paton: Papillomata.

Tuesday, Nov. 16th.—2.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Pathological Demonstration: Dr. Greenfield.

Wednesday, Nov. 17th.—2 P.M., Lecture:—Dr. Tooth: Multiple Peripheral Neuritis. 3.15 P.M., Lecture:—Demonstration of Fraenkel's Exercises.

Thursday, Nov. 18th.—2.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Lecture:—Dr. Gordon Holmes: Cerebro-spinal Syphilis.

Friday, Nov. 19th.—2.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Mr. Sargent: Surgery of the Nervous System.

Saturday, Nov. 20th.—9 A.M., Surgical Operations.

Fee for Post-Graduate Course £7 7s. G. M. HINDS HOWELL, Dean.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Thursday, Nov. 18th.—4 P.M., Lecture:—Dr. Thurstield: Diagnosis and Treatment of Chorea.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westminster-street, W.

Monday, Nov. 15th.—5.20 P.M., Post-Graduate Lecture:—Dr. Watson-Smith: Aortic Aneurysm.

INFANTS HOSPITAL, Vincent-square, Westminster, S.W.

Tuesday, Nov. 16th.—5 P.M., Post-graduate Lecture:—Dr. R. Vincent: Practical Points in Difficult Cases of Infant Feeding and Management.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC: Tuesday, Nov. 16th.—4.30 P.M., Lecture:—Dr. A. E. Barclay: Ray Interpretation and the Cases in which X Rays are likely to be of Assistance in Diagnosis and Treatment.

MANCHESTER FRENCH HOSPITAL POST-GRADUATE LECTURES, 21, Acorn-street (behind Whitworth Park).

Thursday, Nov. 18th.—4.15 P.M., Dr. A. C. Magian: Surgical Treatment of Some Common Gynaecological Complaints. (Lecture II.)

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

Thursday, Nov. 18th.—4.30 P.M., Mr. Morley: Diagnosis and Treatment of Gastric Ulcer. (At Ancoats Hospital.)

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, and UNWIN, LTD., London. Suggestion and Autosuggestion. By Professor C. Baudouin. Translated from the French by E. and C. Paul. Pp. 228. 15s.

APPLETON, D. and Co., London and New York. The Principles and Practice of Medicine. By the late Sir William Osler and Professor T. MacCrae. 5th ed., revised. Pp. 1168. 30s.

BALLINGER, TENDALL, and Cox, London. Aids to the Treatment of Diseases of Children. By J. McCaw, M.D., R.I.C. 5th ed. Pp. 404 + xii. 6s.

BATE, J., SONS, and DANIELSSON, London. The Prevention and Destruction of Rats. By Sergeant-Major E. B. Dewberry, R.A.M.C. With a Preface by Sir A. E. Shipley, F.R.S. Pp. 47. 2s.

BELL, G., and SONS, London. Chess Openings, II. The Centre Game and Danish Gambit. By J. de Mont. Pp. 20.

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE, Washington. A Manual of the Public Benefactions of Andrew Carnegie. Pp. 321.

CHURCHILL, J. and A., London. Handbook of Mechanical Dentistry. By J. L. D. Buxton, I.D.S. Pp. 222. 16s.

Physiology. By F. Roberts, M.D. Pp. 338. 15s. The Difficulties and Emergencies of Obstetric Practice. By Conyns Berkeley, M.D., M.C., and Victor Bonney, M.D., M.S. 3rd ed. Pp. 809. 42s.

DOUGLAS, W. J., Philadelphia. Transactions of the American Surgical Association, Vol. XXXVII. Edited by J. H. Jopson, M.D. Pp. 519.

Transactions of the American Gynecological Society, Vol. XLIV. Edited by G. G. Ward, Jr., M.D. Pp. 383.

GOVERNMENT PRINTING OFFICE, Washington. Standard Non-communicable Diseases and Pathological Conditions, Injuries, and Poisonings for the United States. Pp. 317.

GRIFFIN, CHARLES, and Co., London. The Centenary Volume of Charles Griffin and Co., Publishers, 1820-1920. With Foreword by Lord Montagu. Pp. 220.

HARRISON and SONS, London. Tumours Complicating Pregnancy, Labour, and the Puerperium, being the Leicestershire Lecture delivered before the Medical Society of London, February and March, 1920. By Herbert R. Spencer, M.D. Pp. 78 and plates. 5s.

HEINEMANN, WILLIAM, London. Prevention of Venereal Disease. By Sir G. Archdall Reid. With an Introductory Chapter by Sir H. Bryan Donkin. Pp. 447. 15s.

Lewis, H. K., and Co., London. Medical Electricity. By H. L. Jones, M.D. 8th ed. Revised and edited by L. W. Bathurst, M.D. Pp. xvi. + 575. 22s. 6d.

LIPPINCOTT, J. B., COMPANY, Philadelphia and London. Obstetrics, Normal and Operative. By G. P. Rhoads, M.D. 3rd ed. Revised by F. P. Williams, M.D. Pp. 745. 35s.

Human Embryology. By G. A. Purves, M.D. 12th ed. Pp. 418. 21s. Diagnosis and Treatment of Brain Injuries with and without Fracture of the Skull. By W. Sharpe, M.D. Pp. 757. 35s.

Your Child To-day and To-morrow. By S. M. Greenberg. 2nd ed., revised and enlarged. With a Foreword by Bishop J. H. Vincent, Chancellor of the Chautauque Institution. Pp. 225. 7s. 6d.

MAIGNE, A., 11, rue de la Harpe, Paris. Le Lait Condensé. Par le Dr. P. Lassaubrière. 2e éd. Pp. 150. Fr. 7.

- MCKINAY, JOHN, London.
The Fringe of Immortality. By Mary E. Montelith. Pp. 204. 6s.
- OLIVER AND BORD, Edinburgh and London.
A Dictionary of Scientific Terms. By I. F. Henderson, M.A., and W. D. Henderson, M.A. Pp. 354. 18s.
- RIDGH, W., AND SON, London.
Roger Bacon: the Father of Experimental Science and Medieval Occultism. By H. Stanley Redgrove, B.Sc. Pp. 64. 1s. 6d.
- ROIZ, HERMANOS, Plaza de Santa Ana, 13, Madrid.
Auto-Intoxicacion Intestinal. By Dr. O. J. Diaz. Pp. 144. 3.50 ptas.
- SOUTHERN SURGICAL ASSOCIATION, Raleigh, N.C.
Transactions of the Southern Surgical Association. Vol. XXXI. Edited by Dr. H. A. Royster. Pp. 383.
- THOMAS, JAMES, Edinburgh.
Selected Materia Medica. By W. C. Sillar, M.D., and C. G. Lambie, M.B. Pp. 41. 2s. 6d.
- UNIVERSITY OF LONDON PRESS, London.
Mind and Work: the Psychological Factors in Industry and Commerce. By C. S. Myers, M.D. Pp. 204. 6s.
- UNIVERSITY PRESS, Cambridge.
Instinct and the Unconscious: A Contribution to a Biological Theory of the Psychoneuroses. By W. H. R. Rivers, M.D. Pp. 252. 16s.
- URBAN AND SCHWARZENBERG, Berlin and Vienna.
Diagnose der Simulation nervöser Symptome. Von Prof. S. Erben. Pp. 219. M.55.
- VERLAG VON DR. WERNER KLINKHARDT, Leipzig.
Die Phenolreaktion (Aldaminreaktion) und ihre Bedeutung für die Biologie. Von W. Loele, Hubertusburg. Pp. 60 and 12 plates.

Communications, Letters, &c., to the Editor have been received from—

- A.—Dr. J. Adams, Lond.; Dr. R. Armstrong, Lond.; Australia, High Commissioner for Lond.; Mr. E. Arnold, Lond.; Dr. F. S. Arnold, Berkhamssted; Association of Certificated Blind Masseurs, Lond.
- B.—Dr. G. F. Beaumont, Lond.; Col. R. J. Blackburn, Lond.; Dr. D. Buxton, Boxmoor; Birmingham, Clerk to the Justices; Belgian Information Bureau, Lond.; Mr. J. F. Butterworth, Lond.; Birmingham Panel Committee, Hon. Sec. of; British Museum, Lond.; Director and Principal Librarian of; Board of Education, Lond.; Sec. of; Mr. J. A. Barth, Leipzig; Dr. H. Brown, Lond.; Dr. G. Blacker, Lond.; Dr. W. Burridge, Lond.; British Medical Association, Bradford Division, Sec. of.
- C.—Dr. T. C. Clare, Leicester; Charing Cross Hospital Medical School, Lond.; Dean of; Dr. W. F. Croll, Aberdeen; Prof. A. H. Cushman, Edinburgh; Dr. A. K. Chalmers, Glasgow; Central Council for District Nursing, Lond.; Dr. G. H. Clark, Glasgow; Chicago School of Sanitary Instruction; Sir F. Colyer, Lond.
- D.—Sir H. B. Donkin, Lond.; Mr. E. D. Davis, Lond.
- E.—Dr. J. R. Earp, Geneva; Dr. G. L. Eastes, Lond.
- F.—Miss K. G. Field, Lond.; Dr. A. M. Fraser, Portsmouth; Dr. W. E. Frithergill, Manchester; Sir A. Fripp, Lond.; Dr. R. Ford, Lond.
- G.—Dr. J. P. Gray, Exeter; Dr. L. H. Guest, Lond.; Grosvenor Mansions Chemical Works, Lond.; Mr. J. Good, Kettering; Dr. T. C. Graves, Birmingham.
- H.—Mr. P. B. Hooper, New York; Hospital Sister, Lond.; Dr. C. T. Holland, Liverpool; Dr. A. S. Herbert, Harrogate; Messrs. Handley Page, Lond.; Messrs. W. Heilmann, Ltd., Lond.; Hunterian Society, Lond.; Viscount Hamleden, Lond.; Maj.-Gen. Sir P. Hehir, Westward Ho.
- J.—Dr. F. H. Jacob, Nottingham.
- K.—Dr. C. Kirk, Dundee.
- L.—Dr. S. C. Lawrence, Lond.; Dr. J. H. Lloyd, Philadelphia; Lyceum Club, Lond.; Lady Chichester Hospital for Women and Children, Hove; Liverpool Medical Institution; London Dermatological Society; Maj.-Gen. Sir W. B. Leishman, Lond.; Dr. A. E. T. Loughurst, Chislehurst, Ford.
- M.—Medico-Psychological Association of Great Britain and Ireland, Lond.; Sir J. Y. W. Macallister, Lond.; Dr. A. Macdonald, Lond.; Dr. H. A. Macgwen, Lond.; Col. C. W. M. Moulin, Lond.; Dr. J. E. R. McDonagh, Lond.; Dr. N. H. Munnery, Lond.; Ministry of Health, Lond.; Sir B. Moynihan, Leeds; Medical Research Council, Lond.
- N.—National Safety Council, Chicago; Nursing Mirror, Lond.; Editor of; Nursing Times, Lond.; Editor of.
- O.—Overseas Contracts, Lond.; Dr. E. R. Orchard, Kingsale.
- P.—Dr. F. Prosser, Rainford; Mrs. C. L. Penny, Lond.
- R.—Mr. J. M. Redding, Lond.; Dr. W. H. R. Rivers, Lond.; Mr. W. Rice, Lond.; Royal Faculty of Physicians and Surgeons of Glasgow, Registrar of; Royal Anthropological Institute, Lond.; Royal Society of Arts, Lond.; Royal United Hospital, Bath; Royal College of Physicians of Ireland, Dublin; Sir L. Rogers, Cambridge; Royal Institution of Great Britain, Lond.; Royal Society, Lond.; Dr. J. Ryle, Lond.; Royal Botanic Society of London, Curator of; Dr. W. Robertson, Mossel Bay.
- S.—Dr. C. P. Symonds, Lond.; Prof. W. Stirling, Manchester; Mr. F. B. J. Sharp, Lond.; Mrs. M. K. Smith, Richmond Hill, N.Y.; Society of Members of the Royal College of Surgeons of England, Lond.; Sheffield Medico-Chirurgical Society; Dr. C. J. Stocker, Norwich; Mr. W. J. Smith, Lond.; Dr. F. G. M. Simpson, Leeds; Messrs. G. Street and Co., Lond.
- T.—Mr. J. F. D. Tait, Winchester; Tropical Diseases Bureau, Lond.; Sec. of; Dr. A. Treldold, Lond.; Dr. F. Thomson, Lond.; Dr. H. M. Turnbull, Lond.; Mr. G. G. Turner, Newcastle-on-Tyne.
- U.—United States Mail Steamship Co., Lond.
- V.—Dr. R. Vincent, Lond.; Vocal Therapy Society, Lond., Hon. Sec. of.
- W.—Dr. C. H. Warner, Nottingham; West London Post-Graduate College; Dr. F. J. Waldo, Lond.; Mr. C. Wright, Lond.; Dr. W. N. W. Watson, Bradford; Dr. A. J. Whiting, Lond.; Dr. C. Wall, Lond.

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C.2.

Notes, Short Comments, and Answers to Correspondents.

HEALTH AND SANITATION IN EGYPT.

Viscount Allenby, His Majesty's High Commissioner, has made his first report on the finances, administration, and condition of Egypt and the Soudan. It contains a lengthy, important, and interesting section devoted to medical and sanitary matters, and of this we append a summary:—

Vital Statistics and Infant Mortality.

In the last report the occurrence of an excess of deaths over births was recorded—a very unusual state of affairs in Egypt. A glance at the vital statistics for 1919 shows something of a reversion to more normal conditions, though not uniformly so through the whole country. In Cairo there were 30,794 births (40.4 per 1000) and 32,161 deaths (42.2 per 1000). In Alexandria there were 15,681 births (35 per 1000) and 18,198 deaths (40.4 per 1000). Practically all the other large centres of population showed an excess of births over deaths—in some cases very small—so that the figures for the 20 principal towns show a mean birth-rate of 40.5 per 1000 and a mean death-rate of 39.9 per 1000. The general rates for the whole country were: birth-rate, 33 per 1000; death-rate, 30 per 1000. The population of the whole country, calculated on July 1st, 1919, was 12,878,000. Amongst this population the births totalled 491,222 and the deaths 383,869. In the 20 principal towns the percentage of children born who died before attaining 1 year of age was 22.4. With regard to epidemic diseases in 1919 the chief features to be noted are: (1) the large incidence of small-pox; (2) a noticeable decrease in the incidence of typhus and relapsing fever cases, as compared with 1916, 1917, and 1918; (3) the persistence of the influenza epidemic of 1918 into the first two months of 1919; (4) a severe and fatal epidemic of malaria; and (5) an increase in the mortality-rate of most of the important infectious diseases caused presumably by non-reporting of cases due to the disturbed internal conditions in the spring and early summer.

Small-pox and Malaria.

The total number of cases of small-pox found and reported during the year—the largest during the last ten years—was 7893; of this number 1926 died, giving a mortality-rate of 24.33 per cent. As soon as the unusually large incidence of cases was noticed early in the year a vaccination campaign was begun, but most unfortunately, owing to the disturbances and interruption of communications, this campaign was stopped. It is also quite certain that the number of cases reported in March, April, and May was much below the real number of cases occurring. In June, however, as conditions became more normal, the notification and discovery of cases improved, and has remained at its usual standard since. As soon as possible the general vaccination campaign was reopened and the number of persons revaccinated during the year was 2,500,000.

A severe and fatal epidemic of malaria occurred in Derr Markaz—the most southerly markaz of Egypt—inhabited by a poor population, living on the narrow strips of cultivation on each side of the Nile. The increase in the death-rate was remarked in the autumn, and blood films examined in the central laboratory in Cairo revealed positive malaria. Many of the blood films were taken from women, and as it is well known that Berberine women seldom travel away from their own villages the suspicion was strengthened that there existed a local and fatal epidemic. The diagnosis was confirmed on investigation, and an active anti-malarial campaign was started. In certain places so many of the inhabitants were incapacitated that work stopped in the fields, and at one place—Birim—even the dead lay unburied in the houses for two or three days owing to absence of able-bodied people to bury them. Although it was suspected that the disease had been imported by servants or Labour Corps men returning from Palestine or the Soudan no evidence could be elicited to prove this.

Influenza, Plague, Typhus, and Ankylostomiasis and Bilharziasis.

The epidemic of influenza which appeared in the country in May, 1918, lasted until February, 1919. In February, 1919, it was made compulsory to notify cases of influenza to the Public Health Administration. This was advised on account of the possibility of typhus fever being diagnosed as influenza in order to escape the irksome consequences of disinfection, isolation, &c.

The total number of cases of plague reported was 877, as compared with 357 in 1918. The number of deaths was 473. Of the 877 cases occurring in 1919, 64 were septicemic, 76 pneumonic, and the rest bubonic.

There were 16,970 cases of typhus fever, with 5569 deaths. The Weil-Felix reaction having been found positive for some 70 per cent. of the cases of typhus at the Fever Hospital, Abhassia, it is now carried out as a routine practice for aid in the diagnosis of that disease.

Steps have been taken to reopen the campaign against ankylostomiasis and bilharziasis which cause so much suffering and loss of efficiency among the population of Egypt, especially the fellahs. An Auto-Egyptian Committee has the matter in hand, and it is hoped that assistance will again be afforded by the Rockefeller Foundation International Health Commission.

Veneral Diseases.

Under the system at present in vogue for controlling venereal diseases in Egypt, 471,243 examinations of prostitutes were carried out, with the result that 6192 were found to be infected either with syphilis or gonorrhoea. Of course, these figures do not by any means represent the amount of venereal disease existing in the country, as they only refer to the class of "femmes publiques" registered by the police. Of late years there has been, even in those continental countries where the system originated, a movement to reconsider the efficacy of the medical inspection of

prostitutes or card system, with compulsory hospitalisation of such as were found to be diseased, and to adopt a more civilised system, which consists briefly in propaganda, prophylaxis, and gratuitous treatment centres run on confidential lines, for the benefit of any person contracting venereal disease. It is hoped to start on these lines in Egypt, and a committee is at present engaged in working out details of the scheme.

Hospitals and Medical Aid.

The number of Government hospitals remains as last year—28. The original building programme will be completed with the construction of modern hospitals at Esna and Damietta, to be begun in 1930. Messrs. Thomas Cook and Son have generously offered to provide the Government with the furniture, fittings, and equipment—to the Government on certain conditions of upkeep—for a hospital, when repaired and opened, will serve the needs of a large district with a population of some 50,000. X-ray apparatus are now provided for all Government hospitals. An increase of the medical staff has been decided. At Beni-Suef, a new hospital is being built, and a second medical officer has been appointed to each of them. It is intended to make a similar addition to the staffs of the other hospitals which continue to be worked by one medical officer. These appointments will be made in the near future, and the staffs will be provided for the hospitals as soon as quarters can be built for them.

There are 18 ophthalmic hospitals. The attendances continue to be most satisfactory, and the work carried out is highly appreciated by the people. Five of the hospitals are travelling camps, which are situated all over the country and remain in situ for three or four months at a time. For the purpose of relief of the blind, the following diseases are the most common: trachoma, which has become more and more around them. The two chief diseases dealt with are trachoma and acute contagious ophthalmia, the latter being the chief cause of blindness in Egypt. More than 12,000 of the persons who are blind in Egypt are blind in one eye, and 15 per cent. of the new patients are blind in one eye. The importance of early treatment for children attacked by ophthalmia is now being recognised by the people. A large central 100-bedded ophthalmic hospital for Cairo is sorely needed, for though several smaller hospitals exist, the work of the latter is not sufficient. The director of the ophthalmic section is insistent upon the need of a large central institution to deal with the vast number of patients demanding operation. Moreover, such an institution would provide the best facilities for post-graduate instruction. Thirty-eight dispensaries are being the year around afforded gratuitous medical aid to 34,105 patients.

Children's Dispensaries and Maternity Schools.

The children's dispensaries or child welfare bureaux started in 1913, and since gradually extended until at the end of 1918 they numbered 13, were all working at the beginning of 1919, but in March, owing to political conditions, only four remained open, as it was not considered advisable to leave the matrons and nurses in charge of the hospitals. A report was submitted to the Government Councils to close down the children's dispensaries and to transfer them into hospitals has been evaded, but the report insists on the desirability of maintaining the present system. The seven schools for dayas and maternity homes had to be closed on account of disturbances, so that only an average of 163 working dayas were obtained in 1918, as against 2225 cases in 1917, and a larger number than in any previous year. Fifty-nine dayas were trained and received the higher certificate; 21,099 visits were paid by matrons and pupils to patients in their own homes. It is hoped that it will be possible soon to reopen the Maternity Home and Training School in Cairo, where the better class of midwives and nurses is available the high infantile mortality for which Egypt is notorious will continue. At present three classes of midwives exist in Egypt, viz.: (1) Women in possession of foreign midwifery diploma which are recognised as such by the Government, (2) Women making a living as dayas who hold a licence granted by the Government after who has passed a satisfactory examination at the Medical School, but who cannot be considered in any way as a doctor; and (3) the "daya," who are chosen from a lower grade of society, undergoes no practical training, and is employed as a daya in a private home, or working at a Government hospital, and if successful in passing a somewhat perfunctory examination is given a permit to practise midwifery. Unsatisfactory though she be, no legal powers are presently to withdraw the daya's licence to practise. By the land tax law, the daya is liable to taxation for the whole of her days, and these women are a constant means of spreading malarial fever and death amongst the poorer classes. It is necessary that power to withdraw the permit should be provided, and it is proposed to do this in the Midwives Act which is being prepared.

Public Health Laboratories.

The extension of these laboratories will, it is expected, be finished by the end of 1929, and the whole question of their arrangement and condition is being studied by a small Government commission. With the exception of the city of Alexandria the bacteriological diagnosis for the whole of Egypt is at present centralised at Cairo. This is disadvantageous as regards certain bacteriological diagnoses, such as those required for the diagnosis of plague, typhus, and cholera, and also as regards the use of chemical analyses, such as those of interest to local water supplies, aerated waters and ice, on account of the time taken for the specimens to reach the Central Laboratory at Cairo. It is therefore proposed to extend the facilities for bacteriological diagnoses to certain towns in the provinces, such as Assiut, Port Said, and Assiout. The total number of analyses performed during 1919 was 10,374. Of these 10,374 analyses, 48,000 milk examinations, or less than 0.46 per cent, were found to have been tampered with, either skimmed or watered, or both.

Vaccine Institute.

The amount of vaccine lymph issued in 1919 was 5,645,020 doses. A campaign of general vaccination having been decided on, heavy demands for lymph were consequently made on the Vaccine Institute, whose normal annual output is estimated at 1,000,000 doses a month for a period of six months, besides extra demands for the British, and the Sudan Government, Syria, Cyprus, &c., which are constant and coming in. In order to meet these, temporary buildings for calves had to be erected, extra staff taken on, and

suitable buffalo calves procured. The tubes and phials necessary for the issue of vaccine in such large quantities could not be procured so that the distribution had to be effected by means of such small medicine bottles as were obtainable. It also became evident that cold-storage accommodation must form part of the Institute, the storage of serums and vaccine in external establishments being unsatisfactory.

Antirabic Institute.

1010 persons were treated. In 136 cases treatment was discontinued, as observation of the animals inflicting the bites showed them to be non-rabid. In 10 cases the persons bitten completed the course of treatment, though it was discovered—too late to avoid treatment—that the animal which inflicted the bite was healthy.

Pharmacies and Narcotic Drugs.

The total number of pharmacies in existence at the end of 1913 was 374. Attention is drawn to the traffic in and smuggling of narcotic drugs which exist on a very large scale. The law at present seems powerless to stop it. Although a decree was published in 1915 to prohibit the sale of opium, it is not strictly enforced. A considerable amount of opium is regularly cultivated by persons who only apply for permission to transport it for disposal in the towns. The penalties inflicted by the courts on offenders against the law on narcotics and opium are ridiculously inadequate. A complete system of control and supervision of the manufacture, distribution and analytical laboratories is now in the public. The laboratories referred to constitute a danger to the hand, as at present they are practising under no control, nor is there any means of guaranteeing the quality and quantity of the products. The laboratories perform chemical and bacteriological analyses, and frequently doctors base their treatment on the reports they furnish. Moreover, they constitute a danger for the reason that a certain number of them exist for the sole purpose of extracting alkaloids from crude substances such as morphine from opium, and cocaine from coca leaves, for sale.

Practice of Medicine.—*Lunacy Death-rate.*

Permits to practise their profession in Egypt were issued during 1919 to 79 doctors, 19 pharmacists, 5 assistant pharmacists, 3 veterinary surgeons, 9 midwives, and 10 dentists. According to the present register, there are 2817 doctors, 925 pharmacists, 283 assistant pharmacists, 151 veterinary surgeons, 10 midwives, and 100 dentists. The only important improvement in the real state of affairs, as the Administration is rarely notified of the decease, departure, or retirement from practice of persons on the register. The law, as it at present stands, allows the Public Health Administration to license the holders of diplomas from any recognised faculty or university, without further examination. The examination of the diplomas presented is found to be exceedingly difficult and in some cases deliberate fraud has been brought to light. A new law on the practice of dentistry gives power to the Administration to insist that the holders of doubtful diplomas who apply for permits to practise should submit to an examination before the examiners appointed by the State. It is intended to insert the same powers in the projected new laws on the practice of medicine, midwifery, chemistry, and pharmacy.

The number of persons admitted into the lunatic asylums averages somewhat over 1000 a year. The death-rate in these asylums rose from 17.5 per cent. in 1910 to 25 per cent. in 1919. Mental disease remains the chief cause of mortality in Egypt.

School of Medicine.

This establishment suffered during the war in many ways, but chiefly from the reduction of the staff. The number of students varied only slightly, there being 234 in 1919 as compared with 227 in 1914; 213 graduated during the period. Dr. Keatinge, whose devoted work during the war secured his election in 1919, has been succeeded by Dr. Richards, a distinguished member of the staff. Valuable research was carried on in the school during the war, the most important being the elucidation of the Hæmoglobin discovered by H. A. Hentgen and J. B. S. Pridmore, which was discovered in this country in 1861 by Theodore Bilharz; it was reserved for an Englishman, working in the same school nearly 70 years later, to clear up the more important question of its life-history as well as its mission, the knowledge of which will assist in the solution of any problem connected with the malarial parasite. The welfare of the Egyptian peasantry is closely bound up with the investigation, as the disease is a scourge among them. In the spring of 1919 the School Council seriously considered the question of the prearrangement of salaries and chances of importance have since been adopted. As regards the hospital staff Egyptians have been appointed to two posts of surgeon, two posts of physician, one post of gynaecologist, and one post of ophthalmologist. There are also three posts each with their rights attached to the Hospital Council, one held by an Englishman and two by Egyptians, on the Hospital Council, and Egyptians. The holders have their own wards and their own teams of students, for those training they are responsible. We have whole-time professors of clinical medicine, surgery, anatomy, physiology and histology, and half-time professors of the same branches appointed to the University. Two additional posts for assistant physicians have been added. The vacant post of registrar and medical tutor has been filled, and a lecturer in anaesthetics has been appointed. An addition to the staff has been organised on the basis of the following department should comprise a professor, an assistant professor (Egyptian), one or more lecturers, one or more demonstrators, and one or more laboratory attendants. The curriculum has been revised, and the new syllabus will be completed by the end of the year. Four sites have been secured and plans have been prepared for new buildings for the School of Medicine and Kasr-el-Aini Hospital. The necessity for this has repeatedly been urged by the delegates of the Faculty of Medicine, and has been approved by the Ministry of Education. The necessary extensions are being effected in Surgeons' School buildings, part of which it is proposed ultimately to transfer to the Faculty of Science in the University. A small department of obstetrics and gynaecology has been established, and the department has been built for the teaching of throat and ear diseases. The physiology department has been enlarged, and is being equipped for the study of experimental physiology. A research room and store have also been added. The old museum has been cleared out and fitted up as a laboratory for 64 students, and a room for research

BRITISH RESEARCH CHEMICALS.

It is to be hoped that the appeal of the British chemical manufacturers to all research chemists in this country and other laboratory workers will gain a substantial hearing. It is addressed on behalf of the fine chemical industry both on patriotic grounds and in recognition of the valuable work done by the industry in supplying the needs of the naval and military forces and of the general public during the past few years. It is pointed out that the manufacture of fine chemicals is now recognised as a key industry and is of clear importance to the welfare of the Empire in times of war and none the less in times of peace. The next few years will obviously be critical in the establishment of the home industry on a permanent and successful basis, and a sympathetic treatment by the Government, and support from research bodies and the general public are asked for to prevent the reversion to a pre-war state. The firms prepared to supply the special chemicals referred to are enumerated in a special catalogue recently issued, which gives a list of the chemical substances obtainable and the houses undertaking the supply. The list is remarkably comprehensive, but any inquiry about a particular reagent indicated in a particular research will be welcomed by the Association of British Manufacturers at 166, Piccadilly, London, W. 1.

BLIND MASSEURS.

In a recent communication signed on behalf of the Association of Certificated Blind Masseurs by Mr. C. Mansell Moullin, Sir Alfred Pearce Gould, and Sir Arthur Pearson, the hope is expressed that members of the medical profession, when recommending massage treatment for their patients, will bear in mind the men who in spite of their handicap are striving their hardest to make good. The training received by blind masseurs is of the most thorough description, lasting 18 months or two years; at the end of this time they have to pass the massage examination of the Chartered Society of Massage and Medical Gymnastics under exactly the same conditions as sighted candidates, together with one special examination in remedial exercises and another (after a further three months' training) in modern methods of treatment by faradism, ionisation, radiant heat, &c., using a galvanometer especially adapted for the blind. The association numbers 126 members, 105 men and 21 women, all of whom are practically blind. Forty-nine members live in or near London; a few have gone to the colonies, and the remainder are in the provinces; a list with names and addresses is supplied on request being made to the secretary, Mrs. F. Chaplin Hall, at 224, Great Portland-street, London, W. 1. Seventy-six of the men lost their sight through injury or disease incurred in the recent war. During the week the British Empire has justly honoured its dead; the present is a fitting time to recall the claims of the living and broken. The range of work which blind masseurs are able to undertake can hardly be described as unlimited, but their courage and determination have won for them a wide and honourable sphere of usefulness.

AN IMPROVED TEAPOT.

In order to obtain an equable and full infusion of tea and at the same time avoid the unwholesomeness which results from long infusion, it is usual merely to stir the contents with a spoon or shake the pot, both methods often leading to soiled linen and vexation of mind. Dr. Lachlan Grant, of Ballachulish, has patented a device by which a stirrer is attached to the lid of the pot, and by simply turning the knob of the lid a few times a full infusion is made in less than half the time taken by the ordinary method. In addition, a bitter brew and over extraction of tannin are avoided, while there is an economical saving in tea of from 18 per cent. to 22 per cent. The "stirrer" is made in two forms: (1) a triangular-shaped blade of aluminium permanently attached to the metal lid; and (2) a rod of aluminium bent to a U-shape, which can be easily fitted (at the same time it is detachable) to an earthenware lid. The cost of the appliance, apart from the price of the pot, is from 1s. to 2s. 9d. The complete pots can be obtained from Messrs. James Snedden and Co., 25-31, Queen-street, Glasgow.

THE METROPOLITAN WATER-SUPPLY.

APRIL, MAY, AND JUNE, 1920.

THE month of April this year kept its tradition of a rainy season, for the fall was 4.24 in., being 2.47 in. above the average mean rainfall for that month during the previous 37 years. The effect was that according to the results of chemical examination the raw waters of the Thames, Lee, and New River compared badly with the pre-monsoon findings. The filtered waters, generally speaking, also showed a deterioration as regards chemical quality. Compared, however, with the averages of last year the bacteriological results of the river flow revealed an improvement, there being fewer bacteria found. The water as it reached the consumer showed no bacteriological reproach. In May the rainfall was 1.79 in., representing 0.15

of an inch below the average. There was an improvement in quality in all raw river waters according to chemical tests. A similar improvement was shown in regard to the filtered waters. The results compared favourably with those obtained in the corresponding period last year. The filtered waters, however, yielded results not as satisfactory as last year. The raw river waters gave a good bacteriological account and the same was true of the filtered waters. In June the rainfall was 2.41 in., being 0.25 of an inch above the average. There was, on the whole, a falling off of chemical quality in the raw waters of the rivers, but the filtered waters showed an improvement. The results compared favourably with those of last year in the same month. On the same basis the filtered waters showed better results than their respective averages. There were also fewer bacteria found in the raw river waters, and the filtered waters gave "not unsatisfactory results."

PRINTERS ADOPT A LONDON HOSPITAL.

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 6th you express a wish that the example of the printers employed by Messrs. W. H. Smith and Sons in contributing to the support of King's College Hospital might be followed by other branches of the printing trade. It is to be hoped that this will be the case, but the proposition would meet with more enthusiasm if some arrangement were made whereby men who subscribe could be attended to in out-patient departments of hospitals without delay and its resultant loss of wages. Recently a compositor suffering from deafness was sent by his panel doctor to a well-known hospital as an out-patient. On his first visit he secured attention within a reasonable time; but on his second visit a week later he found that there were at least a hundred people to receive attention before his turn came. He preferred to remain deaf and went back to his work.

I am, Sir, yours faithfully,

A PRINTER.

Nov. 6th, 1920.

SUB-THYROIDISM IN SCHOOL CHILDREN.

THE chief school medical officer of health of the Cheshire County Council, Dr. Meredith Young, adds to his report of the education department an interesting appendix by Dr. W. W. Stacey on "Thyroid Enlargement in Children." Including all ages examined from 3 to 14, the number was 1991, showing 162 enlarged thyroids. The case incidence was most marked at puberty and the numbers make the condition worthy of consideration both in regard to causation and other physical and mental associations. Figures are given of results in Northwich and district; of 593 girls (age 14 to 8) 123 showed enlarged thyroids. Enlarged thyroids were present in mothers (11), fathers (3), sisters (26), and brother (1), making a total of 41, while 82 were free from enlarged thyroid in the rest of the family. The corresponding figures for 550 boys of the same age (14 to 8) were enlarged thyroids 37; mothers (3), fathers (0), sisters (6), brothers (2), making a total of 11, while 26 were free from enlarged thyroid in the rest of the family. The author states some of the sociological conditions which seem in certain localities to conduce to thyroid deficiency. Reviewing the whole matter from his necessarily limited inquiries, Dr. Stacey expresses the view that thyroid insufficiency is far more prevalent amongst school children than is generally supposed, and it is possible that a large number of dull and backward children are sufferers from this form of disease.

WINE v. WHISKY.

To the temperance reformer in this country it will appear a strange proposition that wine is the greatest enemy of alcoholism. This contention is made quite seriously, however, by Professor Maurice Letulle. Professor Letulle writes under an erroneous impression that the present alternative before the American people is a choice between "absolutely free alcohol and water forced upon everyone." We believe we are correct in saying that the most which is hoped for by the wet party in America is the repeal of the Volstead Act and the substitution by Congress of a new Act so defining alcoholic drinks as to exclude from the definition beers and light wines. This misunderstanding does not vitiate the main point of the thesis, which is that everyone who loves and appreciates the taste of wine dislikes that of spirits. Wine is not a food certainly, but it is a condiment. Professor Letulle is an active partisan of the French League against Alcoholism, and cannot be suspected of any sympathy with the vested interests. He does not even recommend the Americans to buy French wines, but rather that they should plant vineyards in their own country.

Country Practitioner.—We have been unable to trace our correspondent in the Medical Register.

¹ La Presse Médicale, Sept. 4th, 1920. Une fauer de la lutte internationale contre l'alcoolisme.

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A SECOND "CEMETERY" IN WHICH THE DANUBE PIONEERS WERE BURIED, WITH ILLUSTRATIONS OF THEIR PECULIAR FLINT INDUSTRY.—The skulls above were interred,



each piously placed with the face towards the setting sun. In all burials previous to this the face is turned towards the entrance to the cave, in whichever direction that may be. The skulls of the women were richly adorned with collars of deer's teeth and perforated shells—one of these contained 52 teeth and 100 shells. One child's head had been entirely covered with shells as with a bonnet. All were thickly sprinkled with red ochre. The orientation of the skulls proves that these Danube races had made an advance in religious belief and custom. Perhaps it is evidence of sun-worship, or of an idea similar to that of the ancient Egyptians regarding an abode of the dead in the west. We have no other evidence than that provided by these burials of what the people were like who carried on the flint industry known as "Tardenoisian." Some of their pigmy flints are here reproduced. It is supposed that they were intended for insertion into bone handles to make the kind of harpoon we know to have been used in later times by the Neolithic peoples.

CULTURE PHASE: EPIPALAEOLITHIC (Azilian-Tardenoisian)

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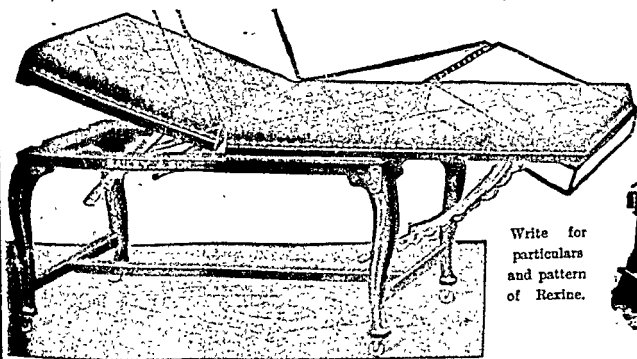


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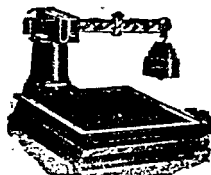
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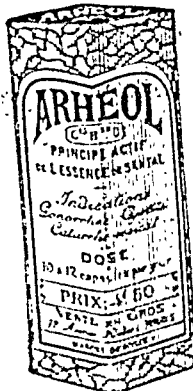
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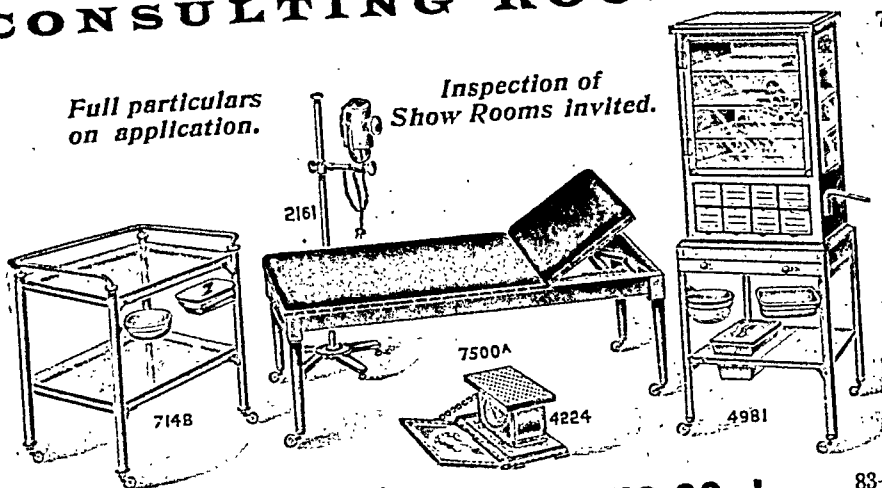
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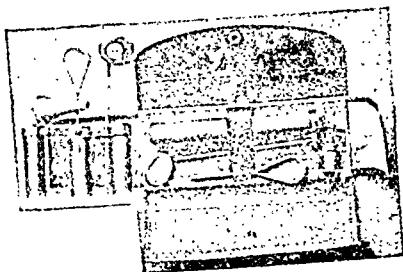


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This Examination will commence on Monday, 3rd January, 1921.

Candidates who have complied with the necessary requirements, and who desire to present themselves for either Examination, must apply in writing, through the post, to the Examination Hall, 8-11, Queen-square, London, W.C., fourteen days before the respective Examination commences.

For Part II. of each Examination the required certificates must accompany the application.

2nd November, 1920

FREDERIC G. HALLETT, Secretary.

Royal College of Physicians of London AND THE Royal College of Surgeons of England.

DIPLOMA IN TROPICAL MEDICINE.

This Examination will commence on Tuesday, 28th December, 1920. Candidates who have completed the prescribed course, and who desire to present themselves for this Examination, must forward the necessary certificates through the post to the Examination Hall, 8-11, Queen-square, London, W.C., at least fourteen days before the Examination commences.

2nd November, 1920.

FREDERIC G. HALLETT, Secretary.

Royal College of Physicians of London AND THE Royal College of Surgeons of England.

FIRST EXAMINATION.

This Examination will commence on Tuesday, 4th January, 1921.

Students are admitted to the Examination on producing evidence of having received instruction in the subjects thereof, in accordance with the conditions of the Regulations.

Candidates intending to present themselves for a part or parts of the Examination must give fourteen days' notice in writing to the Secretary, at the Examination Hall, Queen-square, Bloomsbury, London, W.C., from whom all particulars relating thereto, including the Regulation and Synopses of the subjects, may be obtained.

SECOND EXAMINATION.

This Examination will commence on Thursday, 6th January, 1921.

Students who have completed the required professional study, and who desire to present themselves for examination, must forward the necessary schedules through the post to the Examination Hall, Queen-square, Bloomsbury, London, W.C., fourteen days before that date.

THIRD OR FINAL EXAMINATION.

This Examination will commence on Tuesday, 11th January, 1921.

Students who have completed the required professional study and have fulfilled the other necessary conditions and desire to present themselves for examination in either or all of the subjects must forward the necessary schedules through the post to the Examination Hall, Queen-square, Bloomsbury, London, W.C., fourteen days before the Examination commences.

DIPLOMA IN PUBLIC HEALTH.

Part I. of this Examination will commence on Tuesday, 28th December, 1920, and Part II. on Monday, 3rd January, 1921.

Candidates who have completed the prescribed courses, and who desire to present themselves for examination in either or both Parts, must forward the necessary schedule, or schedules, through the post to the Examination Hall, Queen-square, Bloomsbury, London, W.C., fourteen days before the Examination commences.

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Copies of the regulations, including information regarding the date on which essays must be received and any further information that may be required, may be obtained on application to the Academic Registrar, University of London, South Kensington, S.W. 7.

D. C. PERRY, Principal Officer, University of London, South Kensington, S.W. 7, 23th October, 1920.

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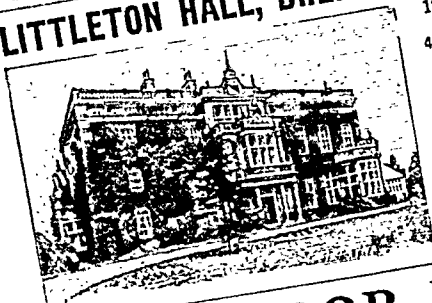
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A PRIVATE MENTAL HOSPITAL FOR THE CARE AND TREATMENT OF MENTAL AND NERVOUS CASES OF BOTH SEXES EITHER VOLUNTARY OR UNDER CERTIFICATES, preferences being given to Recoverable Cases.

Terms from £2 2s. per week upwards.

Private Apartments on special terms.

Situated mid-way between Manchester and Liverpool. Two miles from Newton-le-Willows Station on the L & N.W. Ry., and close to Ashton-in-Makerfield Station on the G. & L. Ry. in direct communication with Manchester. CONSULTING ROOMS (Dr. Street, 47, Rodney Street, Liverpool, from 2 to 4 P.M., or by appointment. Telephone: 2154 Royal Liverpool. Manchester (Dr. Mould), Winter's Buildings, St. Ann Street, on Tuesdays and Thursdays, from 12 to 1.30 P.M., or by appointment.

VISITING AND CONSULTING PHYSICIANS.—Sir JAMES EARL, LL.D., M.D., F.R.C.P., 72, Rodney Street, Liverpool; G. E. MOULD, Physician for Mental Diseases to the Rhineland Royal Hospital, The Grange, Rotherham. For further particulars and forms of admission apply Resident Medical Proprietor, Haydock Lodge, Newton-le-Willows, Lancs. Telegraphic Address: "BRANZ, Ashton-in-Makerfield."

Telephone: 11 Ashton-in-Makerfield.

PECKHAM HOUSE

Established

1825

112, PECKHAM ROAD, LONDON, S.E.

Telegrams: "Alleviated, London."

Telephone: New Cross 576.

An Institution licensed for the CARE and TREATMENT of the MENTALLY AFFLICTED of Both Sexes. Conveniently situated. Electric trams and omnibuses from the Bridges and West-End pass the House. Private houses with electric light for suitable cases adjoining the Institution. Holiday parties sent to the Seaside branch at Worthing during the Summer months. Moderate terms.—Apply to Medical Superintendent for further particulars.



NORTHWOODS HOUSE WINTERBOURNE, near BRISTOL.

FOR PRIVATE TREATMENT OF MENTAL DISEASES.

Situated in a large park in a healthy and picturesque locality, easily accessible by rail via Bristol, Winterbourne, Patchway, or Yat. Stations. Unfurnished Boarders received. For further information see Medical Directory, page 2133. Terms moderate.

Apply to Dr. J. D. Thomas, Resident Physician and Licentiate, for full particulars.

FUNCTIONAL NERVOUS DISORDERS

KENLAW HOUSE, Colinsburgh, FIFE

Climate dry and bracing. Within easy reach of St. Andrews and Elie.

PSYCHO-THERAPEUTIC, RE-EDUCATIONAL, and OCCUPATIONAL TREATMENT.

Two hundred acres of grounds, including private nine-hole golf course; extensive gardens; workshop.

Electric Light. Central Heating. Accommodation for twenty-five patients of either sex.

For particulars apply to the Resident Physician, W. H. BRYCE, M.D., O.M., or to the SECRETARY.

Telephone and Telegrams: UPPER LARGO No. 2.

THE GRANVILLE HOTEL

On the East Cliff,
Overlooking the Sea. RAMSGATE. Within Easy Access of
all the Famous Golf Links.

Special terms and facilities for Golfers, including conveyance to and from the North Foreland Golf Club.

Suite of Baths equipped with the most Modern Installation and Appliances for Scientific Medical Treatment—comprising Turkish Bath, Russian Vapour Bath, Radiant Light & Heat, High-Frequency & Sinusoidal Current, also Professor Bergonié's Apparatus for the Treatment of Rheumatoid Arthritis, Muscular Affections, Spinal Curvature, Colitis, Neurasthenia, &c.

Full Particulars of Treatment on application to the Manager.

Specially Reduced Terms for Autumn and Winter.

GARAGE.

Telephone: Ramsgate 12.

THE FINEST HOTEL ON THE COAST.

Telegrams: "Granville Hotel."

ST. KATHARINE'S, HOOK HEATH, WOKING.

For the OPEN-AIR TREATMENT of "ANTE-" and "POST-SANATORIUM" CASES of TUBERCULOSIS of the LUNGS, &c.
Pleasantly situated on the "Upper Bagshot Sands," 300 feet above sea level, it stands in its own charming grounds facing South and West, and sheltered from the North and East in a mild and bracing climate.
Trained Nurses on duty night and day. Facilities for Artificial Pneumothorax and other modern methods.
Electric Light, Gas and Water laid on, Central Heating, Main Drainage.
For particulars apply to A. R. SNOWDON, M.R.C.S., L.R.C.P., Medical Superintendent, St. Katharine's, Hook Heath, Woking, Surrey.

MENDIP HILLS SANATORIUM, FOR THE OPEN-AIR TREATMENT.

Old-established, beautifully situated. 300 acres of Sanatorium grounds. Pinewoods and sheltered avenues. Altitude 850 feet. Porous subsoil. Separate chalets, with verandahs, hot-water radiators, and electric light. Special features—breathing apparatus, graduated exercises, and continuous inhalation. Individual attention. Resident Physician—O. MURDO, M.D., M.R.C.S., L.R.C.P.
For particulars, apply SECRETARY Hillgrove, Wells, Somerset.

VALE OF CLWYD SANATORIUM.

This Sanatorium is established for the treatment of Tuberculosis of the Lungs and of the Pleural Cavities. It is situated in the midst of a large area of park-land at a height of 450 feet above sea-level, on the south-west slopes of mountains rising to over 1800 feet, which protect it from north and east winds and provide many miles of graduated walks with magnificent views.
Fully-trained Nurses. Nurse on duty all night. X-Ray apparatus newly installed. Every facility for treatment by Artificial Pneumothorax.
Electric lighting in every room. Heating by radiation.
For particulars apply to Medical Superintendent, H. MORRISTON DAVIES, M.D. (Cantab.), F.R.C.S. Llanbedr Hall, Rutbin, N. Wales.

NORDRACH-ON-DEE BANCHORY (near Balmoral), SCOTLAND.

SANATORIUM FOR THE OPEN-AIR TREATMENT OF PULMONARY & OTHER FORMS OF TUBERCULOSIS.

Situated on the slope of a Pine Forest with sunny southern exposure and sheltered from high winds. The Institution is fully equipped with Research Laboratory, Throat Room, Dental facilities, and new and powerful X-ray plant.

Treatment by Artificial Pneumothorax (with X-ray control), the various Tuberculin, Autogenous Vaccines, and Massage by qualified Masseuse, &c., are employed in suitable cases without extra charge.

There is a full day and night Nursing Staff.
Inclusive terms £9 : 9 : 0 per week.
Apply to Medical Superintendent, GEOFFREY LUCAS, M.D., Banchory.



PENDYFFRYN HALL SANATORIUM

(NORDRACH-IN-WALES.)
FOR THE OPEN-AIR AND INOCULATION TREATMENT OF ALL FORMS OF TUBERCULOSIS.
TREATMENT AVAILABLE BY ARTIFICIAL PNEUMOTHORAX.

One of the first Sanatoria opened in the United Kingdom to carry out the treatment as practised at Nordrach. Carefully graduated walks rise through pine, gorse, and heather to a height of over 1000 feet above sea level, commanding extensive views of both sea and mountains. Sheltered from E. and N.E. winds. Climate mild and bracing. Small rainfall. Large average of sunshine. There are over five miles of walks in the private grounds. Rooms heated by hot-water radiators and lit by electric light.
Sister and full Nursing Staff. Trained Nurse on duty all night.
Telegrams: Pendyffryn; and Telephone: 20 Penmaenmawr.
For particulars apply to Dr. J. M. GHEATY, Medical Superintendent, Pendyffryn Hall, Penmaenmawr, N. Wales.

MATLOCK SANATORIUM

Situated on the edge of the mountain limestone area of Derbyshire, over 700 feet above sea-level. The buildings face south and command beautiful views, while on the north and east they are sheltered by lofty hills. The surrounding country is well known for its great beauty and interest. The climate is dry and bracing. The buildings are lighted by electricity and heated by radiators.
Treatment is carried out on modern lines, all special methods being available in suitable cases. A new X-ray apparatus has been installed, and there is a complete equipment for the carrying out of up-to-date methods in all Tubercular and other Pulmonary cases.
For particulars apply to FREDERICK KIRKLAND, M.R.C.S., L.R.C.P., Medical Superintendent, Matlock Sanatorium, Matlock, Derbyshire.
Telephone and Telegraph: SANATORIUM, MATLOCK 22.

DARTMOOR SANATORIUM. 750 FEET.

TUBERCULIN USED ONLY FOR SUITABLE CASES.
X-RAY APPARATUS RECENTLY INSTALLED.

Resident Physicians—C. H. BERRY, M.R.C.S., L.R.C.P.; E. A. CRICKLOW, M.R.C.S., L.R.C.P.
For particulars, apply C. H. BERRY, M.R.C.S., Sanatorium, Chagford, Devonshire.

Telephone: 11 Chagford.



"Overdale Hall"

Whitefield, Manchester.

TWILIGHT SLEEP

The old-established and well-known Home of the YORKSHIRE TWILIGHT SLEEP NURSING HOME LTD., has removed from ACOMB COURT, YORK, to the above large and beautifully furnished Country Mansion. The grounds are beautifully laid out; the seclusion of same affording every privacy to patients enjoying them. The Fees are moderate and are inclusive of the services of a Resident Accoucheur, with highly qualified nursing staff. For further particulars please write Lady Secretary.

The Princess Christian College,
Fallowfield, Manchester. There are a few VACANCIES in the Nurseries for Infants and Little Children. Every care and attention. South aspect. Large garden. Terms on application to the Principal.

BATH

7, LANSDOWN CRESCENT.

THE ST. CATHARINE NURSING HOME.

Beautiful position. Electric light and lift. Central heating. Dietetic and electrical treatment. Plombières douche. All chemical investigations. Telephone: 1119. Telegrams: "Nursing," Bath.

INEBRIETY MELBOURNE HOUSE, LEICESTER

PRIVATE HOME FOR LADIES.

Medical Attendant: ROBERT SEVESTRE, M.A., M.D., Cantab.
Principal: HENRY M. RILEY, Assoc. Soc. Study of Inebriety.
Thirty years' Experience. Excellent Medical References.
For Terms and Particulars, apply Miss RILEY or PRINCIPAL.
Telegrams: "MEDICAL, LEICESTER." Nat. Telephone: 769

EPILEPSY.

Colthurst House School,
Warford, Alderley Edge.

Under the Management of the Committee of the David Lewis Colony.)
Home Life, Medical Care, School Education, most suitable for boys subject to Epilepsy. Terms 42s. weekly.
Further particulars may be obtained from Dr. ALAN McDUGALL, The Colony, Warford, Alderley Edge.

EPILEPSY. THE DAVID LEWIS COLONY.

Stands in its own grounds of 180 acres and is situated in a beautiful part of Cheshire, 2½ miles from Alderley Edge Station, and 14 miles from Manchester. Electric light throughout. The Colony system ensures the social life and employment most suitable for those who suffer from Epilepsy. Patients certifiable under the Lunacy or Mental Defective Acts are not eligible for admission. Two Resident Physicians. Terms for Middle- and Upper-class Patients, from 42s. a week upwards, according to accommodation and requirements. Private rooms can be provided.
For further information apply to the Director, Dr. ALAN McDUGALL, Warford, near Alderley Edge, Cheshire.

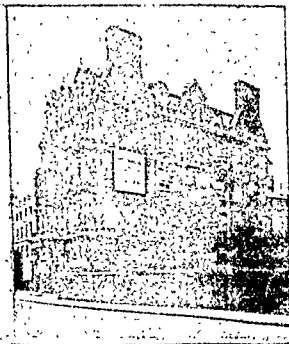
FREEMASONS HOSPITAL AND NURSING HOME

Primarily for Paying Patients of Limited Means

237, FULHAM ROAD, CHELSEA, S.W. 3.

Nearest Station—South Kensington (five minutes).

Telephone—KENSINGTON 6627.



The Hospital is ready to receive adult patients of both sexes or children, the Home being specially designed for those unable to afford ordinary nursing home charges. It has its own splendidly equipped X-Ray and Electrical Departments, and these are available also for out-patient treatment.

The patients are restricted to members of the Craft and their families, but any medical practitioner may follow his own case in the institution.

The charge for nursing home treatment is £3 3s. weekly, the Hospital defraying the excess from its Endowment Fund income.

Where specifically desired a patient may be operated upon by any surgeon, being a F.R.C.S.

All information will be afforded by the Honorary Secretaries. Medical practitioners are cordially invited to inspect the premises.

PALACE HOTEL, MONTANA

Accommodation for 100 patients.

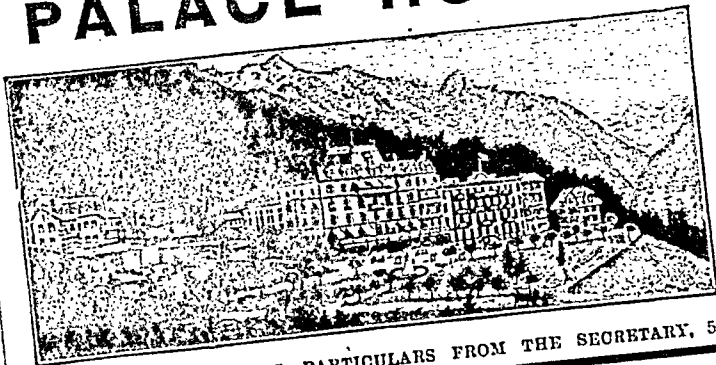
SUR SIERRE,
SWITZERLAND.

TUBERCULOSIS CURE
STATION (All the Year).

THE FINEST IN EUROPE.
5000 feet high.

Principal Resident Medical Officer:
BERNARD HUDSON, M.D. Cantab., M.R.C.P.,
Late Physician to the Queen Alexandra
Sanatorium, Davos Platz.

FULL PARTICULARS FROM THE SECRETARY, 5, ENDSLEIGH GARDENS, LONDON, N.W.1.



DROITWICH BRINE BATHS WARNING.

The Public are warned that the full benefits of the treatment for Rheumatism and kindred complaints CAN ONLY BE OBTAINED IN THE NATURAL BRINE BATHS AT DROITWICH, FOR WHICH THERE IS NO SUBSTITUTE. LOVELY HOLIDAY DISTRICT. GOOD HOTELS, &c. Illustrated Booklet Post-free from Baths Manager, J. B. HOLLYER, 45 Spa Enquiry Offices, Droitwich (Worcs.). SPECIAL FACILITIES TO MEDICAL MEN

INEBRIETY.

[Telephone: 16 Rickmansworth.

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of Gentlemen under the Act and privately. Established 1833 by an association of prominent medical men and others for the study of Inebriety; profits, if any, are expended on the Institution. Large secluded grounds on the banks of the river Colne. All kinds of out-door and in-door recreations and pursuits.—For particulars, apply to F. S. D. HOGG, M.R.C.S., &c., Resident Medical Superintendent.

For COMFORT and HEALTH Visit THE CATERHAM SANITARIUM "Battle Creek System."

Telephone: 88.
Telegrams: "HYDRO, CATERHAM."

Medical Superintendent:
Dr. F. O. SHONE.

The Pines **AROSA** Switzerland
Small English Pension run on Sanatorium lines.
Apply Mrs. DONNER (late of Villa Gentianna).
Reference by permission to Dr. E. C. MORLAND.

SMEDLEY'S HYDRO.

MATLOCK. Established 1853.

Physicians: G. O. R. Harbison, M.B., B.Ch.
R. MacLellan, M.D., C.M. (Edin.)

Prospectus and full information on application to Managing Director.

DUFF HOUSE, BANFF, SCOTLAND.

TREATMENT OF DISORDERS
OF THE STOMACH AND
INTESTINES, INCLUDING
TROPICAL DISEASES; DIABETES

and other complaints which need skilled chemical, bacteriological and
physiological investigation and dietetic treatment.

The House is fitted with Laboratories, X Ray Installation, Medical
Baths, Central Heating, and Lifts.
The climate is mild, and the rainfall the lowest in Scotland.
Apply, THE SECRETARY, Duff House, Banff.

PLYMPTON HOUSE S. DEVON.

This old-established Licensed House offers every advantage that
experience can suggest for the cure and treatment of Mental Cases.
For terms, &c., apply to the Resident Physicians.
No. 2 Plympton. Dr. ALFRED TURNER, Dr. J. C. KIRK.

PORTSMOUTH BOROUGH MENTAL HOSPITAL.

Accommodation is provided for the reception of PRIVATE PATIENTS
of both sexes in three detached Villas, which are healthy and
pleasantly situated in extensive grounds, with sea views.
Charges from 3 guineas weekly, including all necessaries, except
clothing. Apply to the Medical Superintendent.

BISHOPSTONE HOUSE, BEDFORD.

Telephone 708.
Private Home for Mentally afflicted Ladies; ten only received.
Terms from 6s. weekly.
Apply, Medical Officer, or Mrs. Peels.

THE GRANGE, ROTHERHAM.

A HOUSE licensed for the reception of a limited number of ladies of
sound mind. Both certified and voluntary patients received. This
is a large country house with beautiful grounds and park, five
miles from Sheffield. Station, Grange Lane, G.O. Railway, Sheffield.
Telephone No. 34 Rotherham.
Resident Physician—GILBERT H. MOULD, L.R.C.P., M.R.C.S. Con-
sulting Physician—GROSVENOR CLAPHAM, M.D., F.R.C.P.H.

CLARENCE LODGE, CLARENCE ROAD, CLAPHAM PARK.

A limited number of Ladies suffering from MENTAL and NERVOUS
DISORDERS are received for treatment under a Specialist.
The house stands in large grounds.
For further particulars see illustrated prospectus from the
Proprietress, Mrs. THWAITES. Telephone: Brixton 494.

CITY OF LONDON MENTAL HOSPITAL, DARTFORD, KENT.

Under the Management of a Committee of the Corporation of
the City of London.
PRIVATE PATIENTS are received at the rate of Two or Three
Guineas weekly.
Apply to the Medical Superintendent.

STRETTON HOUSE,

Church-Stretton, Shropshire.

A Private HOME for the treatment of Gentlemen suffering from
Mental Diseases. Bracinghill country. See "Medical Directory," p. 2119.
Apply to Medical Superintendent. Telephone: 10 P.O. Church-Stretton.

MALLING PLACE, KENT

For LADIES and GENTLEMEN of Unsound Mind.

Terms moderate. Apply to Resident Medical Superintendent.
 Telegrams: ADAM, WEST MALLING. Telephone: No. 2 MALLING

Telegraphic Address: "Relief, Old Catton."
 Telephone: "250 Norwich."

NERVOUS & MENTAL AFFECTIONS.

Ladies only received.

The Grove, Old Catton, Norwich.—

A High-class Home for the Curative Treatment of Nervous Affections. Voluntary Boarders are also received with certificates. Nurses supplied to take charge of patients under the care of their own medical attendants. For full particulars apply to the Misses McINTOCK, or to CECIL A. P. OSBURN, F.R.C.S.E., Medical Superintendent.

PRIVATE PATIENTS.

Three Counties Mental Hospital,

ARLESEY, BEDS.

Special accommodation for Paying Patients of both sexes is provided at "East View" and "West View."
 Ample provision is made for treatment, occupation, and entertainment of the patients.

The situation is high, rural, and the air bracing.
 Terms from 42s. per week, including all necessities except clothing.
 Further particulars and forms of admission may be obtained on application to the Medical Superintendent.

Grove House, All Shretton, Church STRETTON, SHROPSHIRE.

A PRIVATE HOME for the Care and Treatment of a limited number of Ladies Mentally Afflicted.
 Climate healthy and bracing.

Apply to Dr. McClintock, Proprietor and Resident Medical Super-Intendent.

A Resident Patient can be received

In Medical Man's charming country house, within fifteen miles of Town. Specially suited for nerve, drug, alcoholic, or other cases.—For further details and terms, apply R. care of Mr. Percival Turner, 4, Adam-street, Strand, W.C.2.

Resident Patients.—Descriptive List

(Illustrated) of Medical Men in all parts willing to receive Resident Patients sent without charge. Or selection will be made on statement of nature of case and terms to the General Manager, Scholaristic, Clerical & Medical Assn., Ltd., 22, Craven-street, Trafalgar-square, W.C.2.

Doctor can receive Patient or Guest

Into his charming residence near Hyde Park. Drawing-room suite of rooms if desired. Personal observation service and catering good.—Address, No. 412, THE LANCET Office, 423, Strand, W.C.2.

West End Hospital for Nervous

DISEASES, 73, Welbeck-street, W. 1.—Applications are invited for the post of DERMATOLOGIST, and should be sent, with copies of three recent testimonials, to the Secretary before 25th November. Candidates must be Members or Fellows of the Royal College of Physicians, or Fellows of the Royal College of Surgeons.

West End Hospital for Nervous

DISEASES, 73, Welbeck-street, W. 1.—Applications are invited for the post of ASSISTANT PHYSICIAN, and should be sent, with copies of three recent testimonials, to the Secretary before 25th November. Candidates must be Members or Fellows of the Royal College of Physicians of London and Graduates in Medicine of a University of the United Kingdom.

The Mount Vernon Hospital for

TUBERCULOSIS AND DISEASES OF THE LUNGS AND HEART, Northwood, Middlesex.—An ASSISTANT PHYSICIAN required.—The Committee of Management are prepared to receive applications for the post of Assistant Physician. Candidates must be Graduates in Medicine of a University of the United Kingdom and Fellows or Members of the Royal College of Physicians of London.

Applications, with copies (not originals) of testimonials, should be sent to the Secretary at the Office, 7, Fitzroy-square, W. 1, not later than Saturday, November 13th.

Queen Charlotte's Lying-in Hospital,

Officer-borne-road, N.W. 1.—ASSISTANT RESIDENT MEDICAL OFFICER (Male or Female) required.

Applicants must be registered. The appointment is for four months. The selected candidate will be expected to proceed to the appointment as Senior Resident Medical Officer (also for four months) at the end of the term of office on the recommendation of the Medical Staff.

The salary of the Assistant Resident Medical Officer is at the rate of £50 per annum, and of the Senior Resident Medical Officer £100 per annum, with board, residence, and washing allowance (4s. per week).

Applications, with copies (not originals) of not more than three testimonials, will be received by the Secretary up to November 15th. Canvassing is prohibited. Duties to commence 1st December, 1920.

ARTHUR WATTS Secretary.

Miller General Hospital for South-

EAST LONDON, Greenwich, S.E. 10.—HOUSE PHYSICIAN (Male) required. (Resident Medical and Surgical Staff four.) Salary £150 per annum, with board, lodging, and laundry. Applications, stating age, and copies of three recent testimonials, to be sent to the Secretary.

East London Hospital for Children

and DISPENSARY for WOMEN, Shadwell, R. 1.—Applications are invited for the post of PATHOLOGIST and REGISTRAR. Candidates must be duly registered. Salary £400 per annum, with lunch and tea.

Applications, with not more than three recent testimonials, must reach the undersigned not later than November 19th.

W. M. WILCOX, Secretary.

East London Hospital for Children

and DISPENSARY for WOMEN, Shadwell, R. 1.—The Board of Management invite applications for Two ASSISTANT PHYSICIANS to see Out-patients two days in each week.

By Section 6, Sub-section 19, of the Constitutions of the Hospital, every Assistant Physician shall be a Member of the Royal College of Physicians of London.

Applications should be addressed to the undersigned, and delivered at the Hospital on or before Saturday, December 4th, 1920. Copies of testimonials should be sent to each member of the Staff, a list of whom can be obtained on application at the Hospital.

By order of the Board of Management.

W. M. WILCOX, Secretary.

Great Northern Central Hospital,

Holloway-road, London, N. 7.—A CLINICAL ASSISTANT required in the Venereal Diseases Department of the above Hospital.

Applicants must be fully qualified, and have had experience in the latest methods of treatment of Venereal Diseases.

Remuneration £1 is. per session of 2½ hours.

Applications, with copies of testimonials, should be sent as soon as possible to the undersigned, from whom further particulars can be obtained.

GILBERT G. FANTY, Secretary.

Central London Ophthalmic Hospital,

Judd-street, St. Pancras, W.C. 1.—There is a vacancy for JUNIOR HOUSE SURGEON (non-resident) to attend daily at 1 o'clock, as well as the Honorary Staff until the Clinique is closed, and undertake the duties of Senior House Surgeon when required. Applications, with testimonials, from duly qualified candidates must be sent to the Secretary on or before Monday, November 15th.

Candidates must attend at the Hospital on Monday, November 22nd, at 4 P.M. Salary at the rate of £50 per annum.

H. R. S. DUCE, Secretary.

Dental Surgeon.—The Committee of

Management of the HOSPITAL for CONSUMPTION and DISEASES of the CHEST, Brompton, invite applications for the post of Dental Surgeon. Applicants must be registered Dental Practitioners, and preference will be given to candidates who are qualified surgeons.

Attendance on 100 guineas per annum is attached to the post. Honorarium of £250 per annum is also attached to the post.

Applications, accompanied by copies of testimonials, must be sent in not later than Saturday, November 20th, 1920.

FREDERICK WOOD, Secretary.

Resident Medical Officer.—The Com-

mittee of Management of the HOSPITAL for CONSUMPTION and DISEASES of the CHEST, Brompton, notify a vacancy in the post of Resident Medical Officer. Salary £500 per annum, with board and residence. Applications, with testimonials, to be sent in on or before Saturday, 20th November, 1920.

Candidates must be registered practitioners and qualified in medicine and surgery, and not under twenty-five years of age. Printed instructions with particulars of the duties may be had on application to the Secretary at the Hospital.

This advertisement is inserted in accordance with the standing rules, but the present acting R.M.O. is an applicant for the post.

Brompton, November, 1920. FREDERICK WOOD, Secretary.

Hospital for Consumption and

DISEASES of the CHEST, Brompton, S.W.

The Committee of Management invite applications for the post of ANESTHETIST.

Attendance on two afternoons a week required and such other times as may be necessary.

Candidates who must be registered Medical Practitioners, are requested to send in applications and testimonials not later than Saturday, 20th November, 1920. Honorarium 75 guineas per annum.

Brompton, November, 1920. FREDERICK WOOD, Secretary.

West London Hospital, Hammer-

smith, W. 6 (104 beds). Incorporated by Royal Charter.—Applicants are invited for the appointment of ASSISTANT ANESTHETIST. Candidates are required to be registered under the Medical Act: to send applications, with copies only of testimonials, as late as to reach me by Wednesday, 17th November, to attend the Medical Council

on Friday, 19th November, at 4.30 P.M., and prior to that date to call on the undersigned and send copies of their application and testimonials to the undersigned; to obtain from canvassing, but nevertheless to send copies of their application and testimonials to the members of the Board of Management, who will elect on Tuesday, 23rd November, at 5 P.M., when candidates must be in attendance.

H. A. MADON, Secretary.

Elizabeth Garrett Anderson Hospital,
 Euston-road, N.W.1.—Wanted, fully qualified Medical Women for the following posts: **HOUSE PHYSICIAN, OBSTETRIC ASSISTANT, two HOUSE SURGEONS.** These appointments for six months from 1st January. Salary at rate of £250 a year, with board, residence, and laundry.
 Also an **ANÆSTHETIST** to attend Saturday and Monday. Appointment for one year. Honorarium £10 10s.
 Also a **DENTAL SURGEON** for in-patients. Particulars of this appointment from the Secretary, to whom applications for any of the above posts should be sent not later than the first post on 25th instant.
 IMOGEN H. McNEAY, Secretary.

Prison Medical Service.

A vacancy exists for a **MEDICAL OFFICER (Class II.)**. Salary £230, rising by £15 per annum to £250, with quarters or an allowance in lieu. The pay is subject to a bonus which at present on a salary of £230 is £272 18s. These posts are pensionable, and there are prospects of promotion to higher rank.
 Candidates must be fully qualified and registered and have had some Asylum experience. Age twenty-five to thirty-five, but preference will be given to those under thirty. Forms of application can be obtained from the Secretary, Prison Commission, Home Office, London, S.W.1.

The London Lock Hospital, 91, Dean-street, W.1.—HONORARY SURGEON TO OUTPATIENTS.
 Candidates for this appointment are requested to send in their applications, with not more than three copies of testimonials, to the Secretary, at 233, Euston-road, W.9, not later than December 6th, 1920.
 The election, which is by ballot of the Governors, will be duly announced to the candidates. No personal canvassing of the Board or Medical Staff permitted. Candidates must be Fellows of the Royal College of Surgeons (Eng.).
 By order of the Board.
 H. J. EASON, Secretary.

November, 1920.

The Metropolitan Borough of FINSBURY.—Appointment of ASSISTANT MEDICAL OFFICER OF HEALTH (Male or Female).—The Borough Council invite applications from persons of either sex (preferably female) for the appointment of an Assistant Medical Officer of Health, whose chief duties should be to carry out, supervise, and direct the Maternity and Child Welfare work of the Borough, under the Medical Officer of Health. The salary will be at the rate of £250 per annum, rising by annual increments of £25 to a maximum of £300 per annum. No bonus will be payable, nor will any claim to a superannuation allowance attach to the appointment.
 Candidates must be duly qualified and registered as Medical Practitioners, and must have experience in Maternity and Child Welfare work.
 Preference will be given to those who have held a Resident Appointment in a Children's Hospital.
 The person appointed will be required to devote the whole of his or her time to the duties of the office, to act under the administrative control and supervision of the Medical Officer of Health, and to pass a medical examination as to physical fitness for the position. The appointment will be subject to the approval of the Ministry of Health.
 Applications on printed forms to be supplied and accompanied by copies of not more than three recent testimonials, must reach the undersigned not later than noon on Monday, 29th November, 1920.
 endorsed "Assistant Medical Officer."
 Due notice will be given to selected candidates as to the necessary interviews.
 HUGH GREEN, Town Clerk.
 Finsbury Town Hall, Rosebery Avenue, E.C.1, 12th November, 1920.

Metropolitan Borough of Greenwich.

Appointment of a **MEDICAL OFFICER for MATERNITY and CHILD WELFARE WORK.**—The Council of the Metropolitan Borough of Greenwich is prepared to receive applications from persons qualified to act as Medical Practitioners for the appointment of Medical Officer of the Maternity and Child Welfare Centres established and proposed to be established in the Borough of Greenwich.
 The person to be appointed must have had hospital obstetric experience and will be personally responsible for the medical care and treatment of patients at the Maternity Clinics, supervise the work of the midwives engaged at the Maternity Home, and will act generally as Assistant Medical Officer of Health.
 The salary will be at the rate of £230 per annum, with bonus on the Civil Service scale of £725 10s. 10d. per annum.
 The successful candidate will be required to devote the whole of his or her time to the Service of the Council, and shall not engage in private practice except when called in to assist midwives in the district.
 The appointment will be subject to the approval of the Ministry of Health, will be terminable by three months' notice on either side, and will also be subject to a medical examination, which the selected candidate will be required to undergo, being satisfied within a mile of the institution and shall not, on retirement, claim or be entitled to any superannuation.
 Applications must be made on forms to be obtained from the undersigned, stating age, qualifications, and experience, accompanied by not more than three recent testimonials, which must be sealed up and entered on the "Medical Officer" form.
 12 A.M. on Tuesday, November 23rd, 1920.
 Candidates, members of the Council, either directly or indirectly, will be disqualified.
 TOWN HALL, GREENWICH, S.E., 9th November, 1920.

St. Peter's Hospital, Henrietta-street, Covent Garden, W.C.2.—ANÆSTHETIST wanted for attendance on Wednesday Afternoons. Honorarium £25 a year and fees from paying patients.—Applications should be sent to the Secretary, by Thursday, 25th November, at above.

London Temperance Hospital,
 Hampstead-road, N.W.1.—Applications are invited for the following post, vacant Dec. 1st.
RESIDENT MEDICAL OFFICER. Salary £230 per annum, with board, residence, &c. Appointment for six months (renewable). Candidates must be fully qualified and registered. Applications, with copies of three recent testimonials, should be addressed to the Secretary.

Canning Town Women's Settlement
HOSPITAL, Balaam-street, Plaistow, E.13.—Wanted, for the beginning of December, a qualified Woman as **RESIDENT MEDICAL OFFICER** for Hospital (25 beds) and Out-patient Department.
 Salary £150 per annum.
 Applications, stating age, qualifications, and previous experience, together with testimonials, to be sent to the Hon. Secretary, Miss Wood, at the above address.

Royal College of Surgeons of England.

ELECTION TO THE COURT OF EXAMINERS.
 Notice is hereby given that the Council on the 9th proximo will proceed to the election from the Fellows of the College of a Member of the Court of Examiners in the vacancy occasioned by the retirement of Mr. H. J. Waring, who does not offer himself for re-election.
 Fellows of the College desirous of becoming candidates for the office must make application in writing to the Secretary on or before the 1st proximo.
 11th November, 1920.
 S. FORREST COWELL, Secretary.

Evelina Hospital for Children,
 Southwark, S.E.—The Committee of Management requires a **HOUSE SURGEON** from 1st December to 12th March, 1921. His salary will be at rate of £160 per annum, with board, residence, and washing.
 Candidates should send applications, with copies of testimonials, to the Secretary, at the Hospital, before 24th November.
 Applicants (qualified and registered) must be interviewed by the Medical Committee. Selected candidates have to appear before the Committee of Management. Time and place of meeting will be notified by the undersigned, from whom rules and other particulars relating to the post must be obtained.
 By order of the Committee of Management.
 H. O. STANLAND SMITH, Secretary.
 8th November, 1920.

St. Mary's Hospital, Paddington, W.2.
MEDICAL REGISTRAR.—The Board of Management invite applications for the above post.
 Candidates for the appointment must be registered Medical Practitioners, and Fellows, Members, or Licentiate of the Royal College of Physicians, or Graduates in Medicine of a University in the British Empire.
 The salary is £200 per annum, with luncheon and tea. Copies of the regulations for the Medical Registrar may be obtained on application at the Secretary's Office.
 Applications, with copies of testimonials, should reach the undersigned on or before Wednesday, 24th November.
 4th November, 1920.
 W. PARKES, Secretary.

The Milroy Lectures on State MEDICINE and PUBLIC HEALTH.

The Council of the Royal College of Physicians are prepared to receive applications for the office of **MILROY LECTURER** for 1922.
 Applications must be addressed to the Registrar, Royal College of Physicians, Pall Mall East, on or before January 1st, and should contain a statement of the division of the subject selected by the candidate.
 The course must comprise not less than "three" nor more than "six" Lectures.
 The Lectures are to be given on Tuesdays and Thursdays in February or March, 1922.
 A copy of Dr. Milroy's "Suggestions" on the subject of his bequest, and information as to the emolument, may be obtained from
 J. A. OSWEN, M.D., Registrar.
 November, 1920.

London County Council.—Applica-
 tions are invited for appointment as **SIXTH and SEVENTH ASSISTANT MEDICAL OFFICER** in the London County Mental Hospital Service. Candidates must not be more than thirty-five years of age and must be registered to practise both in Medicine and Surgery in England. Candidates appointed will be pensionable under the Asylum Officers' Superannuation Act, 1903. Preference will be given to candidates who have served, or offered to serve, with H.M. Forces. Salary £300 a year, rising by annual increments of £25 to £350 a year, without emoluments. Also, at present, temporary additions amounting to from £237 to £251 a year. Charges made for board, lodging, &c. (at present two and a half guineas weekly). Full particulars and conditions of appointment on form of application (on which alone application can be made), obtainable from the Asylum Officer, London County Council, 15, Arundel-street, Strand, W.C.2. Canvassing disqualified.
 JAMES BIRD, Clerk of the London County Council.

Putney Hospital (Chester Bequest).

Lower Common, Putney, S.W.15.—Wanted, a RESIDENT MEDICAL OFFICER. Salary £150 per annum, with rooms, board, and laundry. Applications, stating age, with copies of testimonials, to the Hon. Secretary at the Hospital, from whom further information may be obtained.

Central London Throat, Nose and Ear Hospital.

GRAY'S INN-ROAD, W.C.1.—REGISTRAR.—There is a vacancy for a Registrar. The office is honorary and tenable for one year, subject to re-election. Attendance required twice a week. The duties are to assist the Surgeons in their attendance upon patients and to keep the records. Application to be made at once to
RICHARD KENNAW, Secretary.

Metropolitan Borough of Bethnal Green.

GREEN.—The Borough Council is about to appoint several Part-time Temporary MEDICAL OFFICERS to Maternity and Child Welfare Centres, at a remuneration of 14 guineas per afternoon Session. Medical Women are invited to submit written applications to Dr. Gales, Town Hall, Bethnal Green, E.2, not later than the 20th November, stating qualifications, experience, days free, and whether attendance at an Infant Consultation Centre or a Maternity Clinic is preferred.
DAVID J. KEEP, Town Clerk.

London County and County Infirmaries.

THIRFARLY.—Wanted, a fully qualified ASSISTANT HOUSE SURGEON, unmarried, male. One with knowledge of X Ray work preferred. Salary £150 per annum, with board, residence, and laundry. Applications, stating age, qualifications, and experience, together with copies of three recent testimonials, should be sent to the Resident Surgeon.

Devon County Council.—Assistant School Medical Officer (Male).

Applications are invited to the above post. The Officer will be required to provide his own motor car; an allowance of £220 per annum will be made to cover all travelling expenses. Further information and form of application can be obtained from Mr. County Medical Officer, 1, Bedford Circus, Exeter, and must be returned not later than November 23th.

The Royal Eye and Ear Hospital.

Bradford.—The Committee invite applications for the post of AURAL SURGEON. Applicants must be legally qualified and registered practitioners, and hold the qualification of F.R.C.S. of England, Scotland, or Ireland. The successful candidate will be expected to confine himself to his own speciality in both hospital and private practice.

Applications, stating age, qualifications, and experience, accompanied by copies of two or more testimonials, to be sent not later than December 31st to
19, Market-street, Bradford.
O. V. WOODCOCK, Secretary.

St. Bartholomew's Hospital.

Becheater, Kent (O5 Beds).—The House Committee invite applications for the post of SENIOR RESIDENT MEDICAL OFFICER, vacant 31st November. There are special facilities for practical Surgical work. Candidates must be unmarried, qualified, and registered Medical Men. The appointment is for six months. Salary £150 per annum, with board, residence, and laundry. The Officer appointed will have charge of the Medical Beds, and be Assistant to the House Surgeon.

Applications stating age, qualifications, and experience, accompanied by copies of three recent testimonials, to be sent to the Secretary.
9th November, 1920.

Newcastle-upon-Tyne & Northumberland Sanatorium for Consumptives.

BRASSFORD (95 beds). MEDICAL SUPERINTENDENT (Male) required to commence duties in January, 1921. Salary £250 per annum, together with an allowance of £100 per annum for running expenses of own motor-car. Unfurnished house and light also provided. Forms of application and particulars of duties to be obtained from the Secretary of the Institution, Mr. NEIL DROGIE, Star Buildings, 25, Northumberland-street, Newcastle-upon-Tyne, to whom applications with three recent testimonials, should be sent on or before 6th December, 1920.

County of Surrey.—Appointment of County Medical Officer of Health.

HEALTH.—The County Council of the Administrative County of Surrey invite applications from duly qualified Medical Men holding a Diploma of Public Health for the office of County Medical Officer of Health. The salary will be a net personal one of £120 per annum.

Applications on the prescribed form in the candidate's own handwriting, accompanied by copies of not more than three recent testimonials, must be lodged with the undersigned at the County Hall, Kingston-upon-Thames, not later than the 2nd day of December, 1920. Copies of the prescribed form of application, together with a general statement of the conditions and duties of the office, may be obtained from the undersigned. Personal canvassing by or in favour of a candidate will disqualify an applicant.

T. W. WERNING, Clerk of the County Council.
County Hall, Kingston-upon-Thames, 10th November, 1920.

Royal Berkshire Hospital (220 beds).

Wanted, a HOUSE SURGEON, who must be fully qualified and registered. Salary £350 a year; with board, residence, and laundry. The appointment is for six months. Applications, with copies of recent testimonials, should be addressed to the undersigned, of whom any further information may be obtained. Reading, 13th November, 1920.
HERMAN BUNNEY, Secretary.

St. Mary's Hospitals for Women and Children.

MANCHESTER.—HOUSE SURGEON required for Whitworth street West Hospital (Maternity In-patients; Gynaecological and Children Out-patients) for a period of six months. Salary at the rate of £100 per annum, with board and residence. Applications, with copies of three testimonials, to be sent to the undersigned on or before the 22nd inst.
R. RATLIFFE, Secretary.

County Borough of Stoke-on-Trent.

ASSISTANT TUBERCULOSIS OFFICER.—The Town Council invite applications from qualified Medical Men for the position of Assistant Tuberculosis Officer. Salary £240 per annum plus Civil Service Bonus at present amounting to £324 per annum.

The applicant will be required to act under the directions of the Tuberculosis Officer, and assist him generally. Particulars as to duties, &c., may be obtained from the Medical Officer of Health, St. Peter's Chambers, Stoke-on-Trent. Applications, stating age, qualifications, and experience, accompanied by copies of not more than three recent testimonials, and endorsed "Assistant Tuberculosis Officer," to be delivered to the undersigned, Town Hall, Stoke-on-Trent.
E. B. SHARPLEY, Town Clerk.

North Riding of Yorkshire County Council.—Education Committee.—Assistant School Medical Officer.

Applications are invited from legally qualified Medical Men for the post of Assistant School Medical Officer for the Saltburn District, at a salary of £250 per annum, rising by £25 per annum to £275, with actual travelling out of pocket expenses, the appointment to be subject to termination by three calendar months' notice on either side.

The duties will include the Medical Inspection and Treatment of School Children, and work in connexion with Maternity and Child Welfare, together with such other duties as may be required. Applicants should have had experience in Diseases of Children, and of the Eye and Ear, in work related to Maternity and Infant Welfare, and in the diagnosis of Mental Deficiency.

Preference will be given to those with experience in examination for Errors in Refraction, and other things being equal to those holding a Diploma in Public Health.

Form of application may be obtained from the undersigned, to whom they must be returned marked "School Medical Service," together with copies of three recent testimonials, to reach me not later than Saturday, November 27th.

Education Officer, County Hall, Northallerton, 8th November, 1920.

Rochford Union.—Appointment of Temporary Medical Officer.

THE GUARDIANS of the Rochford Union invite applications from duly qualified Medical Practitioners for the temporary appointment of Medical Officer for their Institution and Children's Home at Rochford (Essex).

The appointment is for a period of three months from the 1st December, 1920, and is made pending completion of arrangements for the Institution and Children's Home at Rochford (Essex).

Salary £7 7s. per week, together with board, apartments, fuel, lighting, laundry, &c. The person appointed must reside in the town of Rochford, and board, apartments, &c., will be secured. Private practice will not be allowed.

The appointment will be made subject to the approval of the Ministry of Health and to the provisions of the Poor-law Officers' Superannuation Act, 1896.

Applications in candidates' own handwriting, stating age, qualifications, and experience, must reach me not later than 10 A.M. on Wednesday, the 17th November, 1920.

By order,
W. HARDING ROBERTS, Clerk.
Union Officers, 43, Clarence-street, Southwark-on-Sa.

City of Leeds.—Assistant M.O.H. for Maternity and Child Welfare.

Applications are invited for the post of Assistant Medical Officer of Health to take charge of the Maternity and Child Welfare Scheme for the City of Leeds under the supervision and direction of the Medical Officer of Health.

The duties will include the supervision of midwives, the direction and control of the work of the Infant Welfare Centres, Infants' Hospital, Day Nurseries, Health Visitors, &c.

Candidates must be qualified and fully registered Medical Practitioners and must possess a degree or diploma in Public Health in addition to experience in Public Health administration, applicants must have had special experience in the treatment of children's diseases and the diseases of women, and must be able to show that they have been engaged for some time in maternity and child welfare work.

The salary offered is £300 per annum. The person selected will be required to devote his whole time to the office and to perform such duties as may be assigned to him by the Medical Officer of Health. The appointment will be terminable by three months' notice on either side.

Applications, giving full details of qualifications and experience, with dates, together with copies of three recent testimonials, endorsed "Assistant M.O.H. M.C.W.," should be delivered to the undersigned not later than Thursday, November 18th, 1920.

ROBERT L. FOX, Town Clerk.
25, Great George-street, Leeds.

Radnorshire County Council.—The
above Council invite applications for the post of COUNTY
OFFICER and SCHOOL MEDICAL OFFICER.
Applicants will be required to devote the whole of his
time and a clerk will be provided by the Council.
Further particulars and expenses in accordance with the

Radnorshire County Council
The above Council invite applications for the post of **COUNCIL MEDICAL OFFICER** and **SCHOOL MEDICAL OFFICER**.
The person appointed will be required to devote the whole of his time to the duties. An office and a clerk will be provided by the Council at Llandrindod Wells.
The salary will be £200 a year, with travelling expenses in accordance with the Council's scale.
Applications with copies of three recent testimonials, should be forwarded to the undersigned not later than December 1st.
Canvassing will be deemed a disqualification.
H. V. VAUGHAN, Clerk.
Llandrindod Wells, 8th November, 1920.

The Royal National Hospital for Consumption, Ventnor, Isle of Wight.
CONSUMPTION OFFICER.—The Royal National Hospital for Consumption, Ventnor, Isle of Wight, has a vacancy for a **CONSUMPTION OFFICER** of the Chest, Ventnor, Isle of Wight, for twelve months, with a salary of £2300 per annum, with a pension of £1000 per annum, with a house, and a car.

THE CONSUMPTION OFFICER.—The Chest, and
DENT MEDICAL OFFICER.—The Chest,
 Consumption, and Diseases of the Chest,
 requires a Male Assistant Resident Medical Officer to
 to take up duties at an early date. Salary £200 per annum.
 residence and board in the Hospital.
 Candidates must be recently doubly qualified, registered, and
 unmarried, and be desirous of undertaking the earnest study of
 in candidate's own handwriting, stating age and
 Birmingham-street, Strand, London.

-assumption of a Male Assistant
 requires a Male Assistant
 to take up duties at an early
 residence and hard in the Hospital.
 Candidates must be recently
 unmarried, and be desirous of
 tuberculosis. undertaking the earnest
 Applications in candidate's own handwriting, stating age and
 qualifications (with one copy of three recent testimonials), may be sent
 to the Secretary, R.N.H.C., 18, Buckingham-street, Strand, London,
 W.C.2.

The Metropolitan Asylums Board
 invite applications for appointment as JUNIOR ASSISTANT
 SURGEON in their children's Hospitals, Caversham, Surbiton,
 and in the METROPOLITAN HOSPITAL for CHILDREN, and there is a staff of five
 beds for the treatment of children, and of the beds are reserved for surgical treatment
 of children.
 Applications in candidature of three persons, with one copy of three photographs, should be sent to the Secretary, R.N.H.C., 18, Buckingham-street, W.C.2.

The Metropolitan Asylums Board
 invite applications for appointment as JUNIOR ASSISTANT
 MEDICAL OFFICER in their Children's Hospitals. Surrey.
 QUEEN MARY'S HOSPITAL for CHILDREN, Carshalton. Surrey.
 The Hospital accommodates 180 children, and there is a staff of Five
 Assistant Medical Officers. A large proportion of the beds are reserved
 for tubercular cases, especially those requiring surgical treatment.
 Candidates must be under thirty-five years of age and unmarried.
 Salary £255 fs. per annum (including wage bonus).
 The candidate appointed will be required to reside in the Hospital,
 and to pay for board, lodging, and washing, at the rate fixed from time
 to time by the Board's Finance Committee. At present the rate is
 10s. per week.
 Applications should be made not later than 10 A.M. on Saturday, 23rd
 June 1912, to the Clerk, Metropolitan Asylums Board, 1, R.C. 4, Clerk to the Board.

Applications to be made not later than 10 A.M.
November 1920, on forms obtainable from the Clerk, to the Board.
Aylmsley Board, Embankment, London, E.C. 4.
28th October, 1921.

The General Hospital, Birmingham.
Applications are invited for the following Resident appointments:
Dentist for six months from January 15th, 1921.
Dentist for six months from January 15th, 1921.
Dentist for six months from January 15th, 1921.
Dentist for six months from January 15th, 1921.

The General
Applications are invited for the following posts:
RESIDENT ANÆSTHETIST for six months from January 15th, 1921.
(The appointment is renewable.)
HOUSE PHYSICIAN for six months from February 15th, 1921.
HOUSE SURGEON for six months, plus board, residence and laundry.
Salary £100 per annum.
TWO HOUSE SURGEONS to Special Departments:—
(i.) Skin and Venereal. January 23th, 1921.
(ii.) Ear and Throat and Eye and Venereal. January 1st, 1921.
Salary £125 per annum, plus board, residence, and laundry.
Candidates, who must be fully qualified and registered, should send
in their applications to the undersigned on or before November 30th,
1920, together with certificates of registration.
A. H. LEASTY, House Governor.

Salary \$125 per month, who must be (under-
Candidates to the undersigned
their applications to the undersigned
1929, together with certificates of registration,
November 6th, 1929.

**City of Birmingham Education Com-
MITTEE-BIRMINGHAM EXERCISES CLINIC.** John Bright
The Committee are about to appoint a Part-time Children
The Committee for consultation in connection with address
the Birmingham Clinic. The officer appointed to him. He w
children under a month, and to ma

City of Birmingham
COMMITTEE—BIRMINGHAM EXERCISES
 at-ent.—The Committee are about to appoint a **PEDIC SURGEON** for consultation in connection with attending the above-named Clinic. The officer appointed will advise at the appropriate treatment of children about once a month, and the probably be called into consultation on the work of the Clinic may be suggested fee is £3 3s. for each occasion.
 Further information with regard to the work of the Clinic may be obtained from the School Medical Officer.
 Applications, in writing, giving full particulars of the age, experience, and qualifications of the candidates, should be addressed to the undersigned, and should reach him not later than the 22nd November 1920.
P. D. ICKES, Chief Education Officer.
 Education Office, Council House, Birmingham.

Monmouthshire Education Committee.—The Council of the County of Monmouthshire, Education Office, Council House, Birmingham, 1920.

MONMOUTH ASSISTANT MEDICAL OFFICER.—Invites applications from duly qualified Medical Officers, to undertake the appointment of Assistant Medical Officer, to School Children, and, in addition, to undertake the Medical Inspection and Child Welfare work and the investigation of Maternity and Child Welfare generally. Experience in correction of errors of sanitation is desirable.

Salary \$35 per annum, rising by annual increments of \$25 to \$700 per annum, with necessary travelling and out-of-pocket expenses.

The successful candidate will be required to act under the direction and supervision of the County Council, and to reside within such place as the Education Committee may determine.

A schedule of the duties to be performed, together with conditions of appointment and a form of application, can be obtained from the undersigned, to whom applications, accompanied by copies of not more than three recent testimonials, are to be sent by the 17th November, 1933.

D. ROBERT JONES, County Medical Officer.
County Hall, Newport, Mon., 4th November, 1933.

GENERAL ADVERTISER

Tulme Dispensary, Dale-street,
road, Manchester, and fully qualified. Salary £10
registered dance, coat, Secretary. Application

Hulme **Stretford-road, Manchester.**
OFFICER, single, duly registered and
per annum, with apartments, attendance, coal, sun-
with testimonials, at once to Honorary Medical Secretary.

Macclesfield General Infirmary
 (62 beds).—RESIDENT HOUSE SURGEON wanted. Salary
 per annum, with board and residence. Applicants must have
 testimonials, at once to Honorary Medical Secretary,
 Macclesfield General Infirmary, Macclesfield.

Macclesfield (53 beds).—RESIDENT £200 per annum, with board and residence. Applicant must have experience in the administration of anaesthetics and applications, stating age, qualifications, and copies of testimonials, to be sent to the Secretary.

Doncaster Royal Infirmary and Dispensary.—Wanted an ASSISTANT HOUSE SURGEON qualified and registered. The scope of work is wide, and valuable experience in all branches of medicine and surgery is afforded. Applications, stating age, qualifications, and copies of testimonials, to be sent to the Secretary. The successful candidate will take up the duties on or about Jan. 1, 1920, and receive a salary of more than three hundred and twenty marks per annum, with contributions to superannuation and gratuity. The successful candidate will be expected to have had experience in all branches of medicine and surgery, and to be able to take up the duties on or about Jan. 1, 1920.

PENSACOLA and registered Surgeon, and
 fully qualified in Medicine and Surgery, and
 experience in Medicine and Surgery, and
 salary \$225 with board, residence, and
 candidate will be expected to take up the duties on or
 Wednesday, December 1st, 1920, marked
 H. KINGSLEY PEACE, Secretary.
 Applications, accompanied by not more than three recent test-
 monials, to be forwarded by Wednesday, December 1st, 1920, marked
 "Resident Surgeon," to
 Hospital, Belfast.
 and rooms. He must

Salary
candidate will be £100 per annum.
321.
Applications, accompanied by testimonials, to be forwarded by Wednesday, 12th inst., to
"House Surgeon," to
H. KINGSLEY PEARCE,
Belfast.
For the above Institution, a RESIDENT PATHOLOGICAL ANATOMIST, with board and rooms. He must be a member of the Royal College of Physicians, and have a diploma in the Department.
For the above Institution, a Lecturer in the Department of Pathology, with board and rooms. He must be a member of the Royal College of Physicians, and have a diploma in the Department.

Royal Victoria
LODIST. Wanted for the above Institution, with board and
 salary £200 per annum, with the work of the Department.
 The appointee must devote his entire time to the work of the Department.
 The appointee must have a good knowledge of Pathology and Bacteriology.
 The appointee must have a practical knowledge of testaments, to be sent to the Honorary
 Secretary, Royal Victoria Hospital, before the 20th November, 1920.
 Applications, with copies of testimonials, to be sent to the Honorary Secretary.
 By order. **H. M. Youse, Honorary Secretary.**

Swansea County Borough.—Assistant
MEDICAL OFFICER.—The Swansea Borough Council invite applications from any qualified Medical Practitioners for the post of Medical Officer, to assist with the medical services of the County, and to act as Maternity and Child Welfare Officer, to be appointed for a term of 3 years.

SWANSEA MEDICAL OFFICER, to assist with the applications from duly qualified men for the Assistant Medical Officer, to assist with the Corporation. Hospital, School Medical Service, Maternity and Child experience are desirable qualifications for the appointment. Salary £500, rising by annual increments of £25 to £500. Applications on special form, which can be obtained from Dr. THOMAS EVANS, Medical Officer of Health, Public Health Office, Swansea, to be sent in not later than Nov. 30th, 1920.

St. Victoria Infirmary, Newcastle
Committee of the Royal Victoria Infirmary,
(HONORARY SURGEON)

Royal Victoria Infirmary, Newcastle-
 upon-Tyne.—The House Committee of the Royal Victoria
 Infirmary invite applications for the post of HONORARY SURGICAL
 Officer in Medicine and Surgery.
 The holder of the post will be expected to perform all the duties
 of a Consulting Surgeon, and to be available for duty at all times.
 The salary is £500 per annum, rising by annual increments of
 £50, to £600, and the holder will be eligible for election to the
 Council of the Infirmary.
 Applications should be sent to the Secretary, Royal Victoria
 Infirmary, Newcastle-upon-Tyne, and must be accompanied by
 testimonials and a list of references.
 The closing date for applications is 30th November, 1921.
 The successful candidate will be notified by letter on or before
 1st January, 1922.

REGISTRAR.
Candidates must be registered in Medicine and Surgery.
The term of office is until the 1st January, 1921; afterwards as from that date.
Applications must be sent to the House Governor and Secretary, Royal Victoria Infirmary, Newcastle-upon-Tyne, not later than Saturday 20th November, 1920.
R. ORME, House Governor and Secretary.

Manchester **Royal Infirmary.**
ASSISTANT MEDICAL OFFICERS (Three). The Board
assist invite applications from registered Medical Out-patients
for appointments to the Treatment (non-resident) is for a
year. Salary £1,000 per annum. Election.

MANCHESTER ASSISTANT MEDICATIONS
 of Management invite applications from
 tions for the above appointment.
 The duties are to assist in the Treatment of Medical cases (non-resident) in the
 two mornings per week. The appointment (non-resident) is for a period of one
 year, but the holder of the office is eligible for re-election. Salary £25
 per annum.
 Candidates must state age and send twelve copies of their application
 and testimonials to the undersigned on or before 9 a.m. on Friday,
 25th November, 1920.
 FRANK G. HAZELL, General Superintendent and Secretary.
 5th November, 1920.

Dontypridd Urban District Council.
 Candidates must state age and occupation. By order of the Council.
 15th November, 1920. PHAWK G. HAZELL, General Superintendent.
 5th November, 1920.

Pontypridd Urban District.
The Pontypridd Urban District is
fully qualified. Medical Women for the piles will
MEDICAL OFFICER whose principal duties of Maternity and
Inspection of School Children and the work of assigned to her from
Welfare, together with other duties which may be assigned to her from
time to time by the Medical Officer of Health, at a commencing salary
of £550 per annum, rising by annual increments of £50 to £650 per
annum.
The lady appointed will be required to devote the whole of her time
to the duties of the office, and will not be allowed to engage in private
practice, also to act under the general direction of the Medical Officer
of Health.
Candidates should be competent to perform the simpler retraction
work, and to prescribe spectacles for School Children, the more difficult
cases being referred to a Specialist. Preference will be given to candi-
dates who have had previous experience in School and Maternity work,
and such experience in the work of Maternity and Child Welfare
Centres will be considered in assessing the initial salary.
The appointment will be terminable by three calendar months' notice
on either side.
Forms of application may be obtained from the Medical Officer of
Health, Municipal Buildings, Pontypridd, and should reach the under-
signed not later than 2nd December, 1922, endorsed "Assistant Medical
Officer of Health."
H. LYONS, Mayor, Clerk to the Council.
Municipal Buildings, Pon
2nd November, 1922.]

Royal Surrey County Hospital,
Guildford (110 beds).—Wanted, **THIRD HOUSE SURGEON** (Male or Female). Salary £150, with board, residence, and laundry. Applications, stating essential particulars, with copies of testimonials, to the Secretary.

Weston-Super-Mare Hospital.—
HOUSE SURGEON required, to commence duties in a month. Salary £155, with residence, board, and laundry. Candidates must possess Medical and Surgical qualifications. Applications, stating age, together with testimonials, to be sent to the Secretaries, Weston-Super-Mare.

The Royal Infirmary, Hull.—Wanted
shortly—**ASSISTANT V.D. and CASUALTY OFFICER**, qualified. Salary £250 per annum.
ASSISTANT HOUSE SURGEON, qualified. Salary £150 per annum. Board-residence in each case. Applications, together with recent testimonials, should be addressed to **BENJ. BROOKS, Secretary.**

Bristol Royal Infirmary.—Applica-
tions are invited for the post of **HON. ASSISTANT PHYSICIAN**. Candidates must be Fellows or Members of the Royal College of Physicians of England, Edinburgh, or Ireland, or Doctor of Medicine or a Graduate in Medicine of one of the Universities of the United Kingdom. Applications, together with copies of testimonials, to be sent to the undersigned on or before November 30th, 1920.
ELIAS G. SMITH, F.O.I.S., Secretary.

Nottingham General Dispensary
(Branch).—Wanted, **RESIDENT SURGEON**, Male (unmarried) or Lady. Must have Medical and Surgical qualifications. Salary £300, with apartments (a t. board), attendance, light, and fuel. This institution is a non-provident one (no beds). Applications, stating age and accompanied by recent testimonials, to be sent to
12, Low Pavement, Nottingham. C. CHESMAN, Secretary.

Bedford County Hospital.—Wanted
at once, for a term of not less than six months, a **HOUSE SURGEON** and **ASSISTANT HOUSE SURGEON**, unmarried, Male, duly qualified to act in Medicine and Surgery. Salary £180 and £150 respectively, with board, lodging, and laundry. Applications, stating age, qualifications, medical and surgical, and previous appointments, together with three recent testimonials, must be sent to
November 8th, 1920. BEAUCHAMP WADMORE, Secretary.

The Royal Infirmary, Sheffield
(363 beds).
The Weekly Board of Management invite applications for the post of **HOUSE SURGEON**.
The salary attached to the appointment is £150 per annum, with board and residence.
Applications, together with copies of recent testimonials, should be addressed to
Board Room, October, 1920. JNO. W. BARNES, Secretary.

City of Birmingham.—Lady Assistant
to the Medical Officer of Health wanted, to take charge of Maternity and Child Welfare schemes.
Salary £200 per annum. Candidate must have Clinical and Administrative experience, and will be required to join the Superannuation Fund. Age not to exceed forty years.
Form of application and conditions of appointment may be obtained from the Medical Officer of Health, The Council House, Birmingham.
Applications must be received on or before November 24th.

University of Durham.—The Council
of the College of Medicine invite applications from persons suitably qualified for the post of **ASSISTANT in the Department of Bacteriology**.
The salary will be at the rate of £500 per annum.
Applicants are asked not to submit testimonials, but to give the names of three individuals who would be willing to speak as to their qualifications.
Newcastle-upon-Tyne, October 21st, 1920.

Warneford, Leamington and South
WARWICKSHIRE GENERAL HOSPITAL, Leamington Spa.
Wanted, 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st, 32nd, 33rd, 34th, 35th, 36th, 37th, 38th, 39th, 40th, 41st, 42nd, 43rd, 44th, 45th, 46th, 47th, 48th, 49th, 50th, 51st, 52nd, 53rd, 54th, 55th, 56th, 57th, 58th, 59th, 60th, 61st, 62nd, 63rd, 64th, 65th, 66th, 67th, 68th, 69th, 70th, 71st, 72nd, 73rd, 74th, 75th, 76th, 77th, 78th, 79th, 80th, 81st, 82nd, 83rd, 84th, 85th, 86th, 87th, 88th, 89th, 90th, 91st, 92nd, 93rd, 94th, 95th, 96th, 97th, 98th, 99th, 100th, 101st, 102nd, 103rd, 104th, 105th, 106th, 107th, 108th, 109th, 110th, 111th, 112th, 113th, 114th, 115th, 116th, 117th, 118th, 119th, 120th, 121st, 122nd, 123rd, 124th, 125th, 126th, 127th, 128th, 129th, 130th, 131st, 132nd, 133rd, 134th, 135th, 136th, 137th, 138th, 139th, 140th, 141st, 142nd, 143rd, 144th, 145th, 146th, 147th, 148th, 149th, 150th, 151st, 152nd, 153rd, 154th, 155th, 156th, 157th, 158th, 159th, 160th, 161st, 162nd, 163rd, 164th, 165th, 166th, 167th, 168th, 169th, 170th, 171st, 172nd, 173rd, 174th, 175th, 176th, 177th, 178th, 179th, 180th, 181st, 182nd, 183rd, 184th, 185th, 186th, 187th, 188th, 189th, 190th, 191st, 192nd, 193rd, 194th, 195th, 196th, 197th, 198th, 199th, 200th, 201st, 202nd, 203rd, 204th, 205th, 206th, 207th, 208th, 209th, 210th, 211st, 212th, 213th, 214th, 215th, 216th, 217th, 218th, 219th, 220th, 221st, 222nd, 223rd, 224th, 225th, 226th, 227th, 228th, 229th, 230th, 231st, 232nd, 233rd, 234th, 235th, 236th, 237th, 238th, 239th, 240th, 241st, 242nd, 243rd, 244th, 245th, 246th, 247th, 248th, 249th, 250th, 251st, 252nd, 253rd, 254th, 255th, 256th, 257th, 258th, 259th, 260th, 261st, 262nd, 263rd, 264th, 265th, 266th, 267th, 268th, 269th, 270th, 271st, 272nd, 273rd, 274th, 275th, 276th, 277th, 278th, 279th, 280th, 281st, 282nd, 283rd, 284th, 285th, 286th, 287th, 288th, 289th, 290th, 291st, 292nd, 293rd, 294th, 295th, 296th, 297th, 298th, 299th, 300th, 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587th, 588th, 589th, 590th, 591st, 592nd, 593rd, 594th, 595th, 596th, 597th, 598th, 599th, 600th, 601st, 602nd, 603rd, 604th, 605th, 606th, 607th, 608th, 609th, 610th, 611st, 612th, 613th, 614th, 615th, 616th, 617th, 618th, 619th, 620th, 621st, 622nd, 623rd, 624th, 625th, 626th, 627th, 628th, 629th, 630th, 631st, 632nd, 633rd, 634th, 635th, 636th, 637th, 638th, 639th, 640th, 641st, 642nd, 643rd, 644th, 645th, 646th, 647th, 648th, 649th, 650th, 651st, 652nd, 653rd, 654th, 655th, 656th, 657th, 658th, 659th, 660th, 661st, 662nd, 663rd, 664th, 665th, 666th, 667th, 668th, 669th, 670th, 671st, 672nd, 673rd, 674th, 675th, 676th, 677th, 678th, 679th, 680th, 681st, 682nd, 683rd, 684th, 685th, 686th, 687th, 688th, 689th, 690th, 691st, 692nd, 693rd, 694th, 695th, 696th, 697th, 698th, 699th, 700th, 701st, 702nd, 703rd, 704th, 705th, 706th, 707th, 708th, 709th, 710th, 711st, 712th, 713th, 714th, 715th, 716th, 717th, 718th, 719th, 720th, 721st, 722nd, 723rd, 724th, 725th, 726th, 727th, 728th, 729th, 730th, 731st, 732nd, 733rd, 734th, 735th, 736th, 737th, 738th, 739th, 740th, 741st, 742nd, 743rd, 744th, 745th, 746th, 747th, 748th, 749th, 750th, 751st, 752nd, 753rd, 754th, 755th, 756th, 757th, 758th, 759th, 760th, 761st, 762nd, 763rd, 764th, 765th, 766th, 767th, 768th, 769th, 770th, 771st, 772nd, 773rd, 774th, 775th, 776th, 777th, 778th, 779th, 780th, 781st, 782nd, 783rd, 784th, 785th, 786th, 787th, 788th, 789th, 790th, 791st, 792nd, 793rd, 794th, 795th, 796th, 797th, 798th, 799th, 800th, 801st, 802nd, 803rd, 804th, 805th, 806th, 807th, 808th, 809th, 810th, 811st, 812th, 813th, 814th, 815th, 816th, 817th, 818th, 819th, 820th, 821st, 822nd, 823rd, 824th, 825th, 826th, 827th, 828th, 829th, 830th, 831st, 832nd, 833rd, 834th, 835th, 836th, 837th, 838th, 839th, 840th, 841st, 842nd, 843rd, 844th, 845th, 846th, 847th, 848th, 849th, 850th, 851st, 852nd, 853rd, 854th, 855th, 856th, 857th, 858th, 859th, 860th, 861st, 862nd, 863rd, 864th, 865th, 866th, 867th, 868th, 869th, 870th, 871st, 872nd, 873rd, 874th, 875th, 876th, 877th, 878th, 879th, 880th, 881st, 882nd, 883rd, 884th, 885th, 886th, 887th, 888th, 889th, 890th, 891st, 892nd, 893rd, 894th, 895th, 896th, 897th, 898th, 899th, 900th, 901st, 902nd, 903rd, 904th, 905th, 906th, 907th, 908th, 909th, 910th, 911st, 912th, 913th, 914th, 915th, 916th, 917th, 918th, 919th, 920th, 921st, 922nd, 923rd, 924th, 925th, 926th, 927th, 928th, 929th, 930th, 931st, 932nd, 933rd, 934th, 935th, 936th, 937th, 938th, 939th, 940th, 941st, 942nd, 943rd, 944th, 945th, 946th, 947th, 948th, 949th, 950th, 951st, 952nd, 953rd, 954th, 955th, 956th, 957th, 958th, 959th, 960th, 961st, 962nd, 963rd, 964th, 965th, 966th, 967th, 968th, 969th, 970th, 971st, 972nd, 973rd, 974th, 975th, 976th, 977th, 978th, 979th, 980th, 981st, 982nd, 983rd, 984th, 985th, 986th, 987th, 988th, 989th, 990th, 991st, 992nd, 993rd, 994th, 995th, 996th, 997th, 998th, 999th, 1000th.

Borough of Todmorden.—Applica-
tions are invited for the position of **Whole-time MEDICAL OFFICER OF HEALTH and SCHOOL MEDICAL OFFICER** (Male or Female). Salary £550 per annum, including bonuses, increasing to £700 after twelve months' satisfactory service.
Applications, stating age, qualifications, and experience, together with copies of not more than three recent testimonials, to reach me on or before the 23rd inst. in envelopes endorsed "Medical Officer."
HENRY GARRATT, Town Clerk.
Todmorden Offices, Todmorden, 1st November, 1920.

Rotherham Hospital.—Wanted,
JUNIOR HOUSE SURGEON, Male, qualified. Salary £150, with board, lodgings, and washing.
Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 2, Moorgate-street, Rotherham.

Norfolk and Norwich Hospital.
Known as **HOUSE PHYSICIAN** (Male) and **FOURTH HOUSE SURGEON** (Male) required.
Salary in each case £200, with board, residence, and laundry.
Candidates, who must possess registered qualifications, should forward applications, stating age, nationality, &c., together with copies of testimonials, as soon as possible to the undersigned.
12th November, 1920. FRANK INCH, Secretary.

**West Bromwich and District Hos-
pital.**—Wanted, a **RESIDENT ASSISTANT HOUSE SURGEON**. He must be doubly qualified and unmarried. Salary £200 per annum, with board, residence, and washing.
Applications, stating age, and if possessing a knowledge of Operative Surgery, &c., and accompanied by copies of testimonials, to be sent to the undersigned.
The candidate appointed will be required to take up his duties immediately.
By order of the Board.
FRANK L. HAMCOCK, Secretary and Superintendent.
October 1st, 1920.

Borough of Plymouth.—Applications.
are invited from registered Medical Practitioners (either sex) for the whole-time appointment of **ASSISTANT MEDICAL OFFICER OF HEALTH**, at a convening salary of £500, rising by annual increments of £25 per annum to a maximum of £550 per annum.
Majority, and Child Welfare. Work constitute the principal duties of the office, but candidates must be prepared to carry out any other duties assigned by the Medical Officer of Health, and must have had experience in the treatment of Children's Diseases. The possession of a Diploma in Public Health will be a recommendation.
Forms of application may be obtained from the undersigned, and may be returned, with copies of three recent testimonials, not later than 17th November, 1920.
O. HALL, Medical Officer of Health.
Town Hall, Stonehouse, Plymouth.

County Borough of Merthyr Tydfil.—
The Education Committee invite applications for the post of **ASSISTANT SCHOOL MEDICAL OFFICER and ASSISTANT MEDICAL OFFICER OF HEALTH** (Male) at a salary of £500 per annum, increasing £25 per annum to a maximum of £575. The main duties will be Medical Inspection of Children in the Schools of the Authority and Treatment at the School Clinic under the supervision of the School Medical Officer. He may also be required to assist the Medical Officer of Health (who is also School Medical Officer) in the performance of his general duties. A knowledge of the X-ray treatment of Ringworms will be a recommendation.
Applications, endorsed "School Medical Officer," stating age, qualification, and experience, together with copies of not more than three recent testimonials, should reach me on or before Saturday, 20th November, 1920.
2nd November, 1920. RUTH ELIAS, M.A., Director of Education.

Salford Royal Hospital (272 beds).—
Applications are invited for the following appointment—
CASUALTY HOUSE SURGEON (Male). This Officer is attached to the Special A&T Department. Salary at the rate of £150 per annum. The appointment is for a period terminating on the 31st March, 1921.
Candidates must be registered under the Medical Act.
Applications, stating age and qualifications, together with copies of testimonials and certificate of registration, to be addressed to the undersigned without delay.
The Resident Medical Staff consists of a Resident Surgical Officer (£200), a Resident Physician (£200), two House Surgeons (£150 each), and Casualty House Surgeon (£150), and vacancies will occur in all appointments every half year—i.e., March 31st and September 30th.
By order of the Board.
GROVER REDDER, General Superintendent and Secretary.
2nd November, 1920.

Jaswant Female Hospital, Jodhpore,
Rajputana, India.—**MEDICAL WOMAN** with good qualifications and experience required to take charge of this Hospital, Jodhpore. Salary Rs 450 per mensem, with furnished house and conveyance allowance. Private practice permitted. One of the good climates of India. Conditions of work will be amongst the most interesting in the Indian peoples. Further particulars from Miss interesting to Mr. General Sir Havelock Charles, India Office, London, to whom all applications and three recent testimonials should be sent by Nov. 25th.

Colonial Service.—There is a vacancy
for a **PATHOLOGIST to the MEDICAL RESEARCH INSTITUTION**, Federated Malay States. The appointment would be temporary for a period of eighteen months at a salary of £1500 a year. Passages and home maintenance are provided. A special knowledge of Morbid Anatomy and home microscopy is required. The duties of the post would include routine post-mortem work and morbid histology for hospitals, lectures, and the investigation of any special problems that may arise. Forms of application may be obtained from the Assistant Private Secretary (Appointments), Colonial Office, Downing-street, S.W.1.

Fully-qualified Medical Officer (single)
wanted immediately for Eday.
Terms offered £10 per week, including board and lodgings.
Apply, with references, to Inspector of Poor, Eday, Orkney.

Shanghai Municipal Council.—An
ASSISTANT HEALTH OFFICER required. Salary 6000 Taels per annum with first-class passage. At the average rate of exchange 6000 Taels represents about £1000; at the present-day rate it is about £1500. Age should not exceed thirty-five. Must hold the D.P.H. in addition to Medical and Surgical qualifications of University standard. Seven months' leave of absence on full pay, with first-class passage to and fro, will be granted for every five years of service. The successful candidate will be required to leave for Shanghai not later than the middle of January.

For further particulars and application form apply to Messrs. JONK & Co., Agents for the Shanghai Municipal Council, 63, Fenchurch-street, London, E.C. 3.

COLONIAL SERVICE.

Medical Officers are required for the
WEST AFRICAN MEDICAL STAFF, and also for the
GOVERNMENT SERVICE in MALAYA, the EAST AFRICAN
PROTECTORATES, the WEST INDIES (including BRITISH
GUIANA), FIJI, and the WESTERN PACIFIC, &c., &c.

The conditions of service differ widely in the various Colonies and Protectorates, but in general the appointments are permanent and pensionable (after a period of probation), and free passages are provided to the place of appointment.

Particulars of vacancies and forms of application can be obtained from the

Assistant Private Secretary (Appointments),

Colonial Office,

Downing Street,

London, S.W. 1.

Ship's Surgeon. — Messrs. Elder

Dempster and Co., Limited, have a few vacancies for Surgeons in their West African Service. Pay £20 per month. Fees allowed for attendance on passengers. Length of voyage varies from six to ten weeks, according to particular route.—Apply, Medical Superintendent, Messrs. Elder Dempster and Co., Limited, Colonial House, Liverpool.

Doctor wishes to secure a Week-End

LOCUM for his Practice in Bucks. for every third week—Friday evening to Sunday evening. Practically no work on Sunday. Terms £2 6s. Full board and railway expenses.—Address, No. 448, THE LANCET Office, 423, Strand, W.C. 2.

Medical Man, aged 60, desires Locum

TRENCY, without Midwifery, or LIGHT ASSISTANCY. No evening. Well received. Excellent references. Terms seven guineas.—Dr. Rineley, 64, Bonham-road, Brighton-hill, London, S.W. 2.

M.B., large hospital experience, H.S.,

R.I. Special Departments, V.D., Stains, Anaesthetics, wishing to take Fellowship, would welcome opportunity Part-time Work, private or otherwise, for that end. Any proposal considered.—Address, No. 447, THE LANCET Office, 423, Strand, W.C. 2.

Locum Tenens Provided
at short notice.

Apply to Mr. PERCYAL TURNER,
the oldest and only Agent who for forty years, without agency fee to Principals, has supplied Practitioners with reliable substitutes,
4 & 5, ADAM STREET, ADELPHI, STRAND, W.C. 2.

Telegrams: Epsomian, London. Telephone: Gerrard 299.

After 5 p.m.—Tel. Epsom 695.

Locum Tenens Provided.

APPLY TO

ARNOLD & SONS,

6, GILTSPUR STREET, LONDON, E.C. 1.

Telegrams: "Instruments, London." Telephone: 5240 City (3 lines).

M.R.C.S., L.R.C.P., single, aged 37,
experienced in Hospital and Private Practice, desires Post at home or abroad. Disengaged.—Address, No. 445, THE LANCET Office, 423, Strand, W.C. 2.

Bristol or near.—Dispenser, Lady,
Apothecaries' Hall qualification, five years' Hospital experience (London) desires post. Doctor or Institution. Secretarial work if required.—Address, No. 443, THE LANCET Office, 423, Strand, W.C. 2.

Lady Dispenser (Hall) desires post
at a London Hospital.—Write, Gladstone, 4, Chaucer Mansions, Queen's Club Gardens, Kensington, W. 14.

Dispenser, Lady (Hall) and Part
Minor, experienced. Doctor or Institution. Live in; keep books; drive car. Good references; reliable.—47, Birmingham-road, West Bromwich.

Doctor's Daughter requires post.
Dispenser, bookkeeper, secretary, typist. Experienced. Very good references.—E. R. 45, Plympton-road, Bournemouth, N.W. 6.

Doctor recommends Lady House-
KEEPER, seven years present post. If by anyone commencing Practice; good cook and manager; quite reliable. Age forty.—Address, No. 444, THE LANCET Office, 423, Strand, W.C. 2.

Lady seeks Re-engagement to Assist
with Nerve or slight Mental cases.—Address, No. 428, THE LANCET Office, 423, Strand, W.C. 2.

Lady desires post receiving patients,
answering phone, &c., for Doctor. London district preferred.—Write, No. 440, THE LANCET Office, 423, Strand, W.C. 2.

Doctor's Daughter, aged 22, dis-
engaged (Apothecaries' Hall). Chemist, dispensing experience, thoroughly understands routine work Doctor's surgery. London or district preferred.—Miss Infield, Kippax, Leeds.

Lady Secretary, efficient, recom-
mended by Medical Man. Experienced in every kind of National Health Insurance work. Panel list and records arranged and kept up to date. Hours of attendance to suit individual Doctors.—Address, No. 442, THE LANCET Office, 423, Strand, W.C. 2.

Gentlewoman desires post as Doctor's
ATTENDANT, daily or resident. Hospital trained.—Address, No. 452, THE LANCET Office, 423, Strand, W.C. 2.

Ex-Women's Legion Driver, appoint-
ment as CHAUFFEUR and NURSE ATTENDANT in Operating-room of Dentist or Doctor. Three and a half years' V.A.D. experience.—Write N.T.B., care of J. W. Vickers and Co., Ltd., 5, Nicholas-lane, E.C.

Wanted by M.B., a Middle- and
Working-class PRACTICE with about 1500 panel, in London or Suburb. Now free.—Apply, Blundell & Co., Walter House, 413-422, Strand, W.C. 2.

Wanted General and Panel Practice.
£1000 per annum upwards. Educational facilities. House to rent.—Address, No. 447, THE LANCET Office, 423, Strand, W.C. 2.

Wanted. Country Town Medical
PRACTICE, with garden and paddock, in Kent, Sussex, or Hampshire.—Address, No. 419, THE LANCET Office, 423, Strand, W.C. 2.

Required, a Lock-up Surgery in
London. Can settle at once.—Send full details in confidence to
Dr. D. care of Arnold & Sons, Transfer Dept., 6, Giltspur-street,
London, E.C.1 (opposite St. Bartholomew's Hospital).

Wanted by M.B., F.R.C.S., a Prac-
tice or PARTNERSHIP in healthy place in Midlands or
South, with scope for Surgery. Income £1200 to £1500.—Apply,
Blondell & Co., Walter House, 418-422, Strand, W.C.2.

Wanted, Practice of £600 to £800 a
year with good panel in a Provincial Town in Southern half of
England. Applicant is an experienced Practitioner, ready to buy at
any price. Details in confidence to 1602, Mr. Percival Turner,
4, Adam-street, Strand, W.C.2.

Wanted by M.B., D.P.H., Panel and
PRIVATE PRACTICE or ASSISTANTSHIP with view to
early Succession, in or around London. Qualified six years, ex-H.S.,
R.A.M.C., &c. Capital available.—Address, No. 441, THE LANCET
Office, 423, Strand, W.C.2.

Wanted, Practices and Partnerships.
Messrs. ARNOLD & SONS, Surgical Instrument Manu-
facturers (Estab'd. 100 years), are in urgent need of Practices or
Partnerships for several of their Clients who are anxious to settle
down at once.—Send full particulars, in confidence, Arnold & Sons,
Transfer Dept., 6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hospital).

Wanted, Private Practice, with or
without panel, in or near London or any large Town. Receipts
from £200 (with scope) to £1500 a year. Medium-sized house. Capital
available for immediate purchase.—Apply, Peacock & Hadley, 19, Cran-
street, Strand, W.C.2. (No charge unless sale effected.)

Required at once, Cash and Panel
PRACTICE in London or Suburbs. Can pay £1000 down and
the balance by instalments. Open to negotiate at once.—Send full
details in confidence to Dr. R. care of Arnold & Sons, Transfer Dept.,
6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hos-
pital).

Veneral Disease.—Partnership
wanted in sound V.D. Practice by F.R.C.S. Ed., with good
experience and knowledge of modern work. Abundant capital.—
Address, No. 435, THE LANCET Office, 423, Strand, W.C.2.

Partnership wanted by M.B. (Lond.
Hons.), F.R.C.S., in a town with prospect of a Hospital Appoint-
ment. Congenial partner essential. Every reference offered.—
Address, No. 450, THE LANCET Office, 423, Strand, W.C.2.

Wanted, Assistant-Partner, for a
lucrative Practice in a growing Seaport Town in a British
Colony. Excellent terms for suitable man.—Address, No. 430
THE LANCET Office, 423, Strand, W.C.2.

Devon.—Required, a Partner (pre-
liminary Assesment), Bachelor preferred.—Address, No. 440,
THE LANCET Office, 423, Strand, W.C.2.

Partner required in West of England
Practice of £1500. Half Share. Great scope for increase. Seller
wishes retire after good introduction.—Address, No. 410, THE LANCET
Office, 423, Strand, W.C.2.

Partnership.—£2500 a year.—
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J. LINDSAY, Town Clerk.

Hon. Secretary, Joint Disablerment Committee for
South-West of Scotland.

City Chambers, Glasgow, 10th November, 1920.

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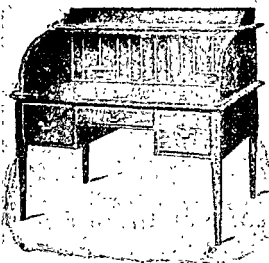
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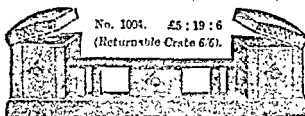
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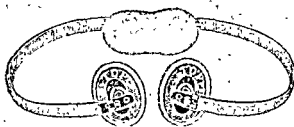
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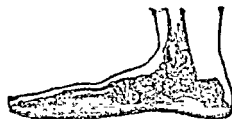


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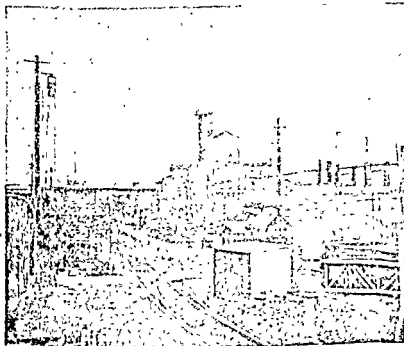
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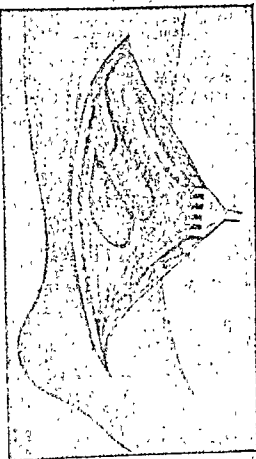
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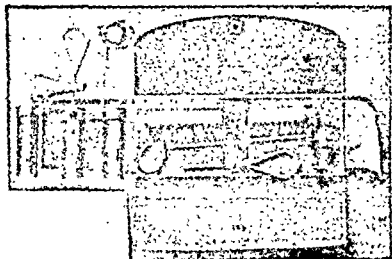
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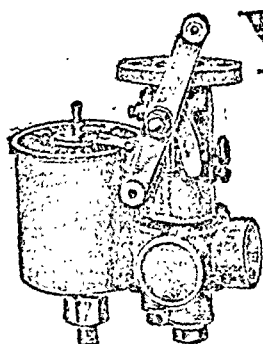
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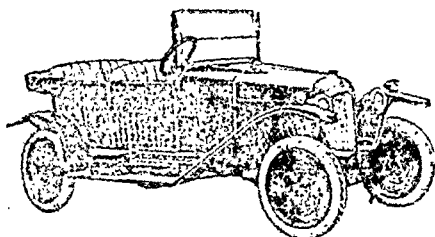
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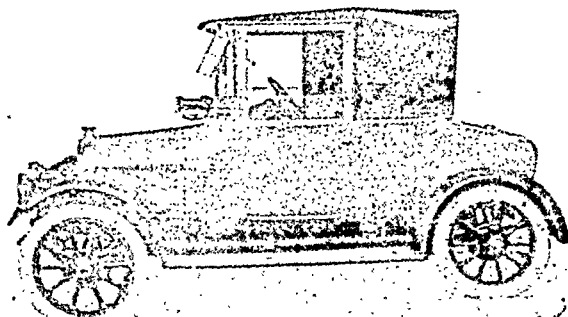
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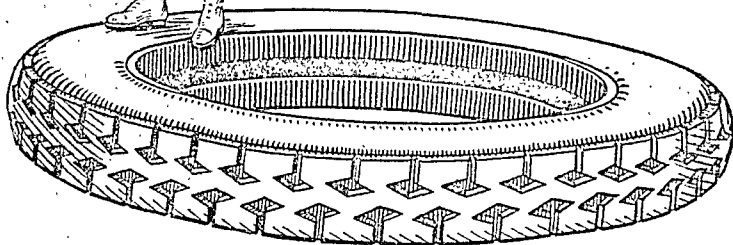
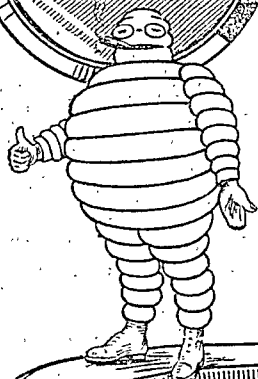
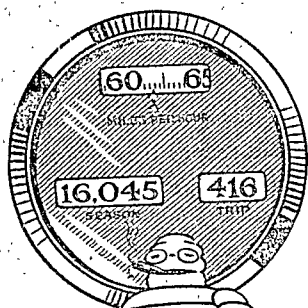
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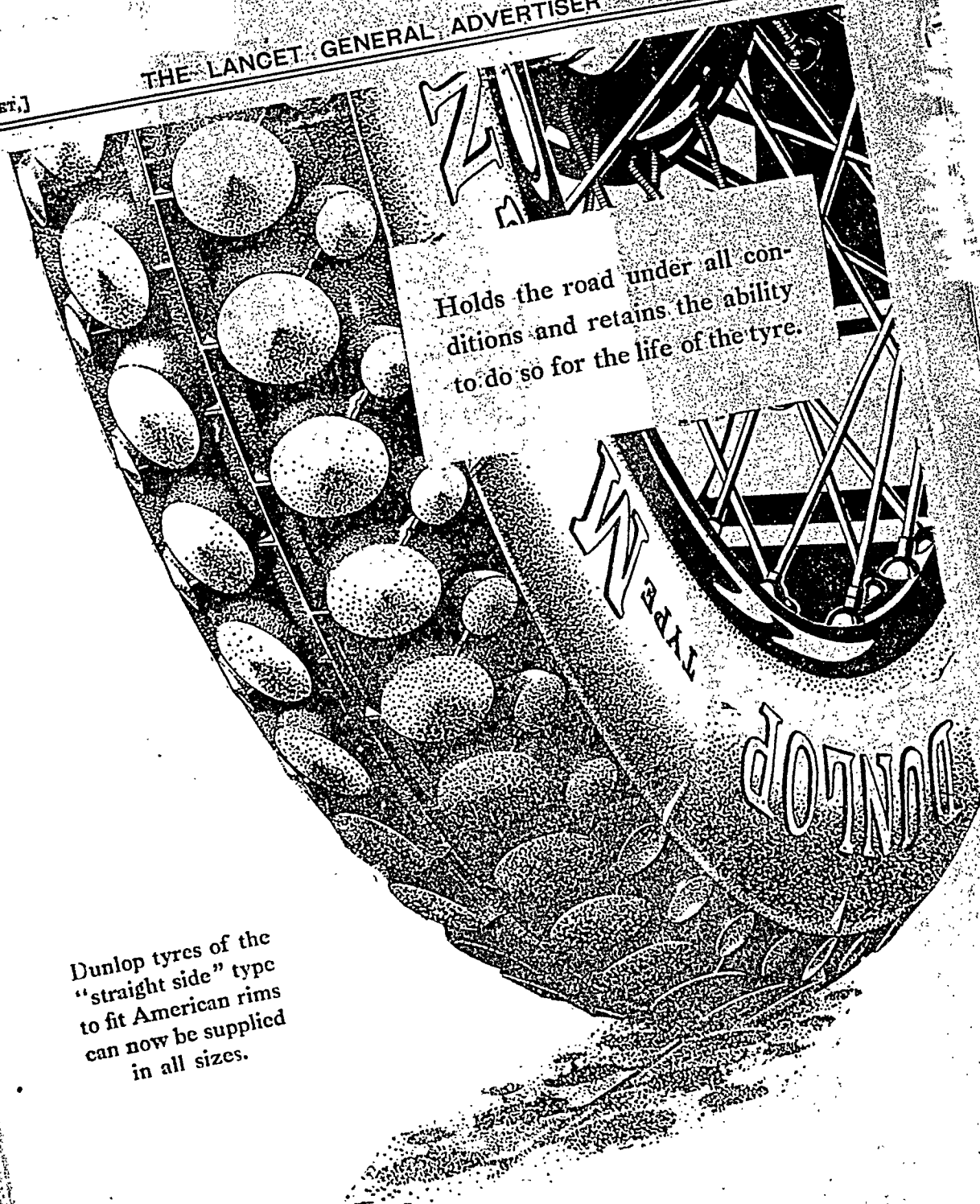
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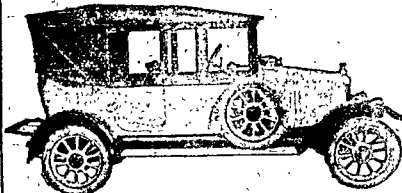
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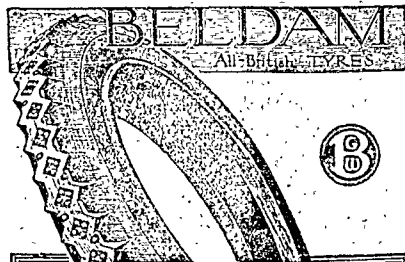


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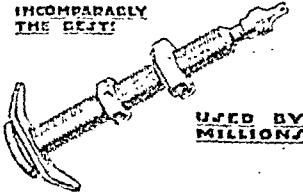
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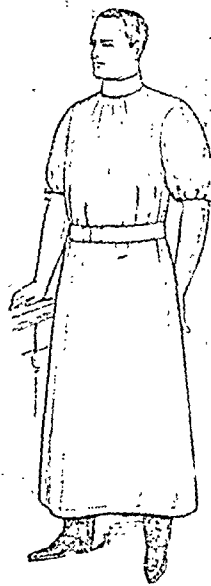
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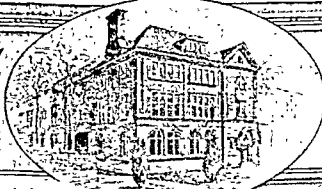
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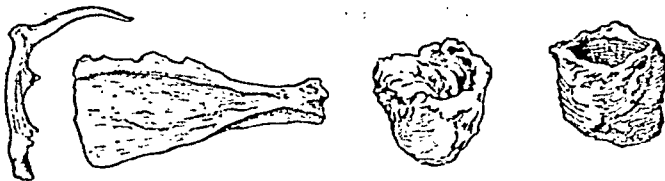


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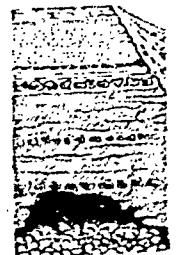
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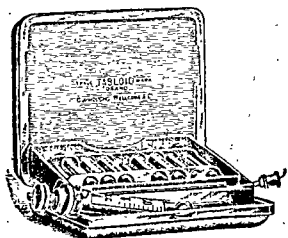
deer. These would wear out rapidly and have to be replaced. They have been found in great numbers in recent explorations, two of them lying just where they were left at the end of the day's work—the roof had fallen in and they were buried where they lay. Adhering to one was part of the coating of clay with which the miner's hand had become covered and upon it were clearly seen his finger prints, the skin impression very apparent. Pick and hammer marks upon the walls (looking as if freshly made) prove that these implements served two purposes, the outside angle away from the point being employed as a hammer. The "shovel" here illustrated consists of the scapula of an ox, probably *Bos longifrons*. A number of these were found in one of the English pits, where heaps of powdered chalk provided evidence of the use of a shovel. It was impossible for the galleries to be worked without artificial light, and certain cup-shaped vessels of chalk, of which two are here figured, are supposed to have served as lamps: they have been purposely hollowed, and one was found upon a ledge from which it would throw a light suitably. CULTURE PHASE: NEOLITHIC (Perhaps also Palaeolithic)



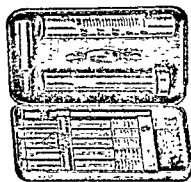
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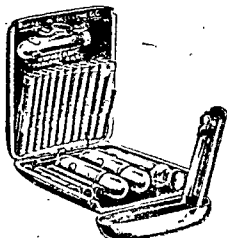
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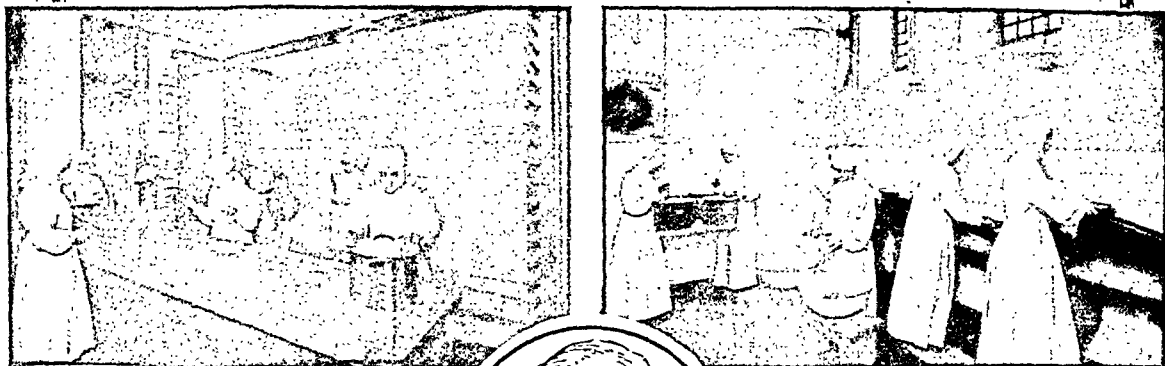
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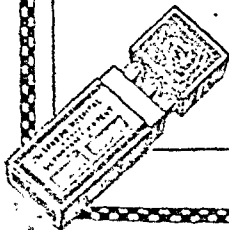
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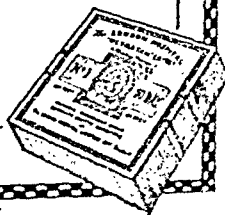
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Some Aspects

or

MENTAL HYGIENE.

Being a Presidential Address delivered to the Section of Psychiatry, Royal Society of Medicine, Nov. 9th, 1920,

By E. FARQUHAR BUZZARD, M.D. OXON.,
F.R.C.P. LOND.,

PHYSICIAN TO ST. THOMAS'S HOSPITAL AND THE NATIONAL
HOSPITAL FOR THE PARALYSED AND EPILEPTIC.

THE occupation of a presidential chair by one to whom the experience is new and unexpected cannot fail to have serious consequences on the mental attitude of the occupant. His sense of inferiority is unpleasantly aroused by looking back at the names of his predecessors in office, while his sense of reverence for presidents in general, a habit of mind which has grown with increasing years, is in danger of destruction. My pride in the honour which has been bestowed upon me is justly tempered by the knowledge that I owe my position, not to individual merit nor to eminence in psychiatry, but to the graceful and generous tribute paid from time to time by the members of this section of the Royal Society of Medicine to their neurological brethren. This symbol of the cordial relationship between psychiatrists and neurologists is peculiarly happy in its appearance at the present moment. The borderland which separates and yet unites our respective territories has for some years past been the scene of an invasion by a somewhat heterogeneous multitude of students, the large majority of whom claim to be disciples of Freud and Jung. These invaders have not sprung only from the ranks of psychiatry and neurology, but in many instances have wandered from more distant realms of medicine and of science. As was inevitable in an unorganised movement of this kind, those taking part in it have not all been equally well armed. Some have lacked sufficient training in psychiatry and neurology, while others have been deficient in the critical faculty and the sense of proportion so necessary to scientific campaigns. It was equally inevitable, perhaps fortunate, that such an invasion should be neither peaceful nor silent. There have been pitched battles between the immigrants and those who considered themselves to be in possession. There have been noisy and unseemly squabbles among the new inhabitants, and this turmoil has been going on in the midst of an international and social upheaval which has brought into relief, perhaps as never before, the strength and the weakness of the human mind, its success and its failure in adapting itself to strange and stressful circumstances. It is not to be wondered at that while the storm provided an immense amount of material for study it created an atmosphere unsuited for well-considered judgments. The last year or two have, however, given us some leisure in which to review the origin, the progress, and the results of the new movement in psychology. I do not propose to enter upon a discussion of the merits or defects of our modern psychopathology and psychotherapy. In the first place I shall summarise shortly our present position; in the second I shall consider how to use what is best and most firmly established of our knowledge, old and new, of psychological processes for the advancement of mental hygiene. In fulfilling my first purpose I shall be dogmatic. My opinions will not be acceptable to everybody, although they probably represent more or less accurately the views of many psychiatrists and neurologists.

VALUE OF PSYCHO-ANALYSIS.

Psycho-analysis is essentially a method of scientific clinical investigation, and like all other methods of scientific investigation it requires in the investigator a trained and critical mind, and in the investigated subject a degree of intelligence rather above than below the average, if the results obtained are to be of value. As

Dr. Henry Head has repeatedly insisted, it is impossible to investigate the problems of sensation on subjects of low intelligence. The information obtained from such an investigation may be useful for the purpose of diagnosis and treatment, but should not be utilised for the construction of general principles.

Psycho-analysis is as necessary for the study of psychiatry as accurate and patient history-taking is necessary for the elucidation of medical problems of organic origin. Psycho-analysis is not essentially a therapeutical measure. In certain cases it has a remedial value, either because it assists an intelligent patient to understand better, and therefore to deal better with, his mental disorder, or because it establishes a relationship of confidence between the doctor and patient which is helpful to the latter and which is the fundamental requirement in all successful psychotherapy. Psycho-analysis as a method of investigation has been the means of establishing a number of truths and principles which are of great importance in the study of psychiatry. As Bernard Hart has recently stated, in terms which can hardly be improved upon:—

"A great number of Freud's conceptions have withstood all the tests that can be applied to them, and it not too much to say that they are now firmly incorporated in the structure of our knowledge. How far other sections of his teaching are sound cannot yet be decided with certainty, but they are at least worthy of careful scientific investigation free from the dust of conventional prejudice. It is certain that Freud's work has opened a new era in psychology and psychopathology, and his introduction of the dynamic point of view—the conception of mental processes as the resultant of the action and interaction of great instinctive forces—has fertilised immeasurably the arid field of the old academic psychology."

In claiming for Freud's work the opening of a new era in psychology Dr. Hart has not gone one step too far, although he is careful to reserve judgment on the merits of many conceptions which have rapidly followed the inauguration of that era. Psychotherapy is a convenient name applicable to all forms of treatment which depend on education, persuasion or suggestion, and not on physical or chemical influences, for their success. Although psychotherapy has been used by the medical profession for many generations, it has been recognised as a special method of treatment based on certain principles only within recent years. Its value in dealing with a large number of mental disorders can hardly be overestimated, and it is for the future to determine the limits of its usefulness.

ITS PRESENT POSITION.

The present position of psychotherapy, as well as the diseases from which it suffers—if a remedy can be the subject of disease—were admirably described by Dr. T. A. Ross in opening the discussion at the Cambridge meeting of the British Medical Association this year, and I cannot refrain from endorsing his eloquent plea for the establishment of a more friendly spirit among those who practice and put their faith in different methods. If this brief description of our present position in regard to psychopathology and psychotherapy is accepted, we are justified in hoping for a great advance in the practice of mental hygiene in the not very distant future. I would include under this term all measures which aim at the prevention of mental disorders, whether they are in the nature of neuroses, psychoneuroses, or psychoses.

Mental hygiene as a branch of medical science has been a miserable, neglected, and stunted plant, difficult to keep alive and still more difficult to rear, but it has a brighter future now that we are beginning to realise what it has lacked and to supply the necessary material for its development. It has always been the same in medicine. Hygiene in respect to tuberculosis was primitive and ignorant until the discovery of the tubercle bacillus. The prevention of sepsis was devoid of principles until the work of Pasteur and Lister paved the way. But if mental hygiene is to grow and to become robust the soil must be prepared, a congenial atmosphere created, and sufficient labour and material provided.

ORIGIN OF "NERVES."

Let me turn your attention to some of the weeds which have choked the plant we would see flourish. To my mind the strongest and most obnoxious is one which was sown in ignorance and has been nourished on fear. I refer to the fallacious belief, deeply implanted in the public mind and waiting a long-delayed exhumation by our profession, that so-called functional nervous disorders or "nerves" are not mental disorders. Surely the time has come to discard a verbal quibble which is unworthy of a scientific profession. There are signs in the air which lead me to think that unless we take this step ourselves the weed will be uprooted before our eyes by force of public opinion. But if we ourselves eradicate this weed we shall, in the first place, be able to speak quite as frankly about mental disorders as about gastric disorders, and to discuss psychotherapy as freely as we do diet. If we recognise, and cause to be recognised, that there are all degrees and kinds of mental disorders, we shall gradually but surely break down the barrier which at present separates "nerves" from insanity, and which preserves for the latter the position of a mysterious and malign ogre lurking in the background and ready to pounce upon its victims from an unseen world. No harm is or ever can be done by dispelling ignorance or clearing up mystery, the fear of insanity, the fear of the unknown, the fear of something coming on them without provocation and finding them defenceless, haunts a multitude of patients and prevents that peace of mind which is the first essential in restoring their "nerves." Tell them that their symptoms are mental, that they have long suffered from a disorder of mind and familiarity will breed contempt in place of defencelessness, and you will remove the feeling of unspoken fear. By so doing promote a confidence that the condition is understood and that your treatment is not based on a wrong diagnosis. It is useless to tell a patient who is obsessed by the fear of insanity that he is only suffering from "nerves." In nine cases out of ten he will suspect either that you are deceiving him or that you are ignorant. Let him see that you recognise his symptoms as mental, and he will leave the treatment in your hands.

Needless to say, what I have here outlined is not sufficient. It is necessary to explain that what you mean by mental disorders are of everyday occurrence and in everyone's experience. You will instance the fact that you may suffer from an obsession which is dispelled by a night's sleep or by talking to a sympathetic friend; that such an occurrence is not a question of nerves, but illustrates a transient disorder of mind. Moreover, you must explain that although symptoms are mental they are not necessarily of mental origin. They may be due to other, more physical, causes, or to a combination of both. For this reason it is necessary to make both a physical and psychical examination, the latter perhaps including a careful investigation of the patient's past and present reactions to circumstances and environment. In these days you will hardly need to emphasise the fact that the ductless glands may play a part, even if a subordinate one, in the production of mental disorder. It will take years before public opinion accepts the idea that mental disorders are among the commonest of ills and that we all suffer from them in a greater or less degree. But once insanity or madness is generally regarded only as an advanced form of mental disorder and not as an independent monster without relationship to other conditions, it will lose much of its frightfulness.

The theme I have entered upon could be pursued in many directions, but I can safely leave the trail to be followed by my audience. I am only concerned really with the plea that we should get rid of false terms such as "nervous" disorders when we mean "mental" disorders, and so clear the ground of the chief obstacle to rational mental hygiene. May I add that I am not preaching what I do not practise, and that I have seen reason to regret the introduction of the word "mental" to patients when I have had the time to

explain precisely what meaning I attach to it. In fact, it is a very necessary preliminary to the initiation of a course of psychotherapy.

CONFUSION OF ETHICAL AND PHYSIOLOGICAL ISSUES.

My next weed must be treated with more tenderness and respect. It has intimate relations with our plant and would almost appear to grow on the same stem. Nevertheless it needs pruning and checking in certain directions if the sap of scientific hygiene is to be preserved. As there is difficulty in distinguishing the leaves of a tree from the ivy creeping over its branches, so is there confusion in mental hygiene between physiological and ethical issues, or—as I am in the habit of putting it to patients—between medicine and morality. Ethical doctrines based on religion are, speaking generally and in view of their antiquity, surprisingly useful in mental hygiene, but they need revision in certain particulars. The whole subject is too vast to admit of full discussion here, but I can make my meaning clear by an example which must be familiar to all of you.

A woman is beset by a fear or an anxiety or a sorrow—it does not matter which—but it is one which, according to her ethical upbringing, she must harbour in silence. She determines to suppress it and, again in accordance with her ethics, seeks success by throwing all her energies into some pursuit. Ignorant of physiological or psychological principles, she is surprised sooner or later to find herself beaten, and in the moment of defeat, when emotional reaction can no longer be restrained, she cries, "To think that I—who always despised women with nerves—should come to this!"

Such a commonplace story illustrates two points of importance in relation to mental hygiene. In the first place, the patient has been brought up in ignorance of the fact that the mind, like the body, can be exhausted, and that an individual's endurance is a variable quantity determined by more than one factor. According to her ethical doctrine the success of her enterprise merely depended on the strength of her will. In the second place her piteous cry revealed the critical attitude of mind which, as a healthy person, she had always cherished towards those whom she had regarded as of inferior moral fibre. If her heart had become dilated as the result of prolonged and over-strenuous exercise there would have been no self-reproach. She would have gone to bed and received the visits of her friends with complacency and without a suspicion of shame. There must be something wrong with the training of youth if a story such as this is of everyday occurrence, and mental hygiene will not flourish in an atmosphere containing so much ignorance of psychological principles and so little charitable discrimination between medical and moral factors.

CREATION OF ENVIRONMENT FOR ADVANCEMENT OF MENTAL HYGIENE.

So far I have been concerned with two measures which appear to be essential in creating a healthy environment for the growth of mental hygiene. They may be summarised in very few words. Disorders of mind should be generally recognised as such, and the moral stigmata attaching to them should be dissipated. Such favourable conditions can only be created by the influence of the rank and file of the medical profession on the public. The time is ripe for a peaceful revolution of this kind. Both the profession and the public are more interested in psychological problems than ever before, and it only requires concerted and carefully considered action to direct this interest along healthy and beneficent lines. So far the increased interest in the mental side of our professional work has been reflected officially by the establishment of diplomas in psychological medicine, a step which should lead to valuable results by securing for this wide field of research a sufficiency of skilled labour.

But personally I do not want to see psychological medicine a special branch of a student's curriculum necessitating a three months' course in a special department. The student has more than enough to bear in the matter of special departments already. He need not be made familiar with all the writings, all the conceptions of Freud, Jung, or the older psychiatrists. He should learn from any or all of his

medical teachers how to recognise, how to investigate, and the broad principles of treating cases of mental disorder. Patients suffering from minor mental maladies will form the bulk of his practice when he is qualified, and, since mental hygiene is concerned principally with the young, the general practitioner of the future must be responsible for its success. He cannot depote these responsibilities to a medical officer of health appointed by municipal authorities. He alone can detect which child in a family is finding difficulty in adaptation to the realities of life or to environment. He only can decide whether a threatening neurosis or an incipient regression is due more to inherent defects in the child or to external causes. His treatment will need to be directed as often to the parents as to their offspring if he is to be successful in preserving the mental health of the latter.

Five-and-twenty years ago a student was taught to distinguish between organic disease and functional disorder in his patients. The diagnosis of organic disease was followed by a discussion on the etiology and pathology of the condition, and the student was able to watch the effects of an elaborate regimen of treatment to its appropriate or inappropriate termination. The diagnosis of a functional disorder, really a mental disorder but not so called, evoked no comparable consequences. The page reserved for etiology and pathology remained blank, and the treatment was either purely physical or consisted of a few mild exhortations.

"You have no organic disease; you must not worry; you will recover in time; you must take plenty of exercise and have plenty of fresh air and good food."

This was generally accompanied by a good strong strychnine-containing tonic, which possibly stimulated an already exhausted patient to further unguided efforts on entirely unsuitable lines.

Recent acquisitions to our knowledge of psychopathology should have sufficed to make the methods I have described so crudely unrecognisable to the student of the present day. Still more do they encourage the hope that the number of victims of mental disorder may be appreciably diminished if modern principles of psychical investigation and psychotherapy are incorporated in general medical knowledge and do not remain the monopoly of a few specialists. The trend of events in our science always follows much the same lines. As soon as much knowledge has been acquired in any particular branch our thoughts are inevitably switched to the prevention rather than to the curative aspects of the problems involved. We are still seeking cures for cancer because we know so little about its causation. We are far more interested in the prevention than the cure of sepsis. Our profession has of recent years become more and more interested in the recognition of early signs of disease, or, rather, the signs of disordered function which precede structural changes. It is not too much to say that psychiatry can now join in this general pursuit and so promote the growth of mental hygiene.

MULTIPLE FACTORS IN MENTAL HYGIENE.

It may seem a far cry from the nightmare of a child who has supped not wisely but too well to the hallucinations of an asylum patient, and to put these two mental disorders in the same category might seem to be a bit of extravagance worthy only of a fanatic. But this nightmare incident illustrates well the tendency we all suffer from in greater or less degree to unify our pathogenesis. We like to think the nightmare was due to indigestion. It saves trouble, and the responsibility for preventing further nightmares may safely be left to the mother. There must, however, have been at least two other factors in the production of the nightmare. There was the inherent constitutional factor which caused that child to have a nightmare, although his brother, after consuming the same supper, slept undisturbed. There was the psychological content of the child's mind which determined the nature of the dream and the emotional disturbance associated with it. The most profound sceptic of modern psychology will not ask us to believe that the story of a dream is a bolt

from the blue, or that it is more intimately related to the content of the dreamer's stomach than to that of his mind. The supper was undoubtedly important and may be allotted the chief share of guilt, but the other factors are not to be neglected if the study of mental hygiene in relation to children is to yield fruit. The asylum patient suffers from hallucinations. Shall we be content to say that he does so because he is mad? Or shall we look forward to the time when the reason for his suffering and the factor which determined the nature of his hallucinations are revealed to us? Looked at in this light, the problem of the nursery and that of the asylum are not so far separated.

The multiplicity of factors is a doctrine which, as teachers, we should keep constantly before the minds of our students. As practitioners our success depends on its observance whatever branch of medicine engages our interest. There can be no doubt that the study of epilepsy, for instance, has suffered much in the past from ignoring the psychological factor, although I should be very reluctant to subscribe to the view that the disease is purely psychopathic. Important as it is to bear in mind the doctrine of multiple factors in general medicine, it must never be forgotten in mental hygiene. We are too apt to say of a patient suffering from a psychosis: "What can you expect? Look at his family history." Granted that the inherent factor has been predominant, is it not possible that a far-seeing mental hygiene might have so dealt with other factors that a serious disorder could have been averted? It is impossible not to sympathise with those who hold that psychotherapy plays only an unimportant part in the treatment of a full-grown psychosis, but this attitude is very different from believing that it cannot be useful as a preventive measure at a more embryonic stage. Endeavour to imagine the terror which must be constantly present in the minds of many sane persons who are members of a mentally unstable family. Is it difficult to realise what comfort they would derive from a belief that heritage is not the only factor to be reckoned with and that medical learning was capable of recognising and assessing the other factors, so that the long-dreaded calamity might be avoided? I have a shrewd suspicion that the advice in such cases to avoid over-strain and to keep the body healthy does not quite meet all requirements. Are there not unavoidable difficulties to be faced in everyone's life, and are we not already in a position to advise how they may best be dealt with?

VALUE OF REST AND THOUGHT.

Before leaving the professional aspects of mental hygiene, and lest I should be accused of a marked bias in favour of modern psychotherapy in the prevention and treatment of mental disorders, let me say a word on the question of rest. There is no doubt in my mind that the invaders of our borderland have unduly minimised the importance of rest as a physiological essential in the prevention and cure of the psychoneuroses. Rest and sleep must, to the end of the chapter, be necessary in treating a condition of exhaustion, however the latter is produced. It is contended that with simple fatigue, uncomplicated by an anxiety state, sleep is undisturbed and refreshing. But it must be remembered that fatigue of itself may convert potential anxieties into active anxieties by reason of that loss of sense of perspective and of proportion by which it is almost invariably accompanied. In this way insomnia and disturbed sleep are brought about and a vicious circle established. This is a matter of everyday experience, and one which must not be lost sight of in any system of mental hygiene.

There is another aspect of mental hygiene on which I would like to touch, but which should perhaps be addressed to educational authorities rather than to yourselves. The chief function of the mind is thinking, and it is doubtful whether an organ can retain its maximal health if its function is not adequately exercised. But exercise must be guided and trained, especially in the young, if it is to attain its object. A game of cricket in which the participants are ignorant of the rules and uninspired by any keenness is worse, as an educational exercise, than no game at all. Is

thinking a function which needs no practice, no training? Hughlings Jackson, whose contributions to psychopathology, in advance of his time like most of his work, have been revived and admirably presented to us by Dr. Maurice Nicoll in a recent article on Regression, was in the habit of exhorting his house physicians to set aside some portion of the day or night to thinking. He advised us to choose some question which had been raised in the course of the day, to allow our powers of association to assert themselves, and to jot down the resulting ideas in a note-book. In other words, he stimulated us to look at each question from many points of view, and to give it as many and as various attachments as possible. The value of forming such a habit can hardly be denied, and its more general adoption might prove to be a powerful preservative of mental health. This memory has been revived by references in recent literature to the beneficial results attributed to conversational re-education. It is contended that this form of psychotherapy relieves a patient's mental suffering by introducing to him other aspects of a conflict which have hitherto escaped his notice. The same principle is concerned in the commonplace experience of talking our troubles over with a sympathetic friend who, without adding to our knowledge, reveals them in different lights. If this hypothesis can be supported, is it not to be inferred that the ability to look at difficulties from many points of view is an asset of some value in the maintenance of mental health? Is it not equally justifiable to assume that this ability must to a large extent be a matter of training in our earlier days?

My recollection of school days may not be reliable, but this principle, if my memory serves me right, did not govern our education. We had little time allowed for thinking, no instruction in thinking, and no encouragement to cultivate the art for ourselves. There was an atmosphere of rigidity in regard to what might be controversial subjects in unfettered minds and a thing either was or was not the right thing to do. I can well remember the surprise experienced on leaving school in relation to matters of conduct and to opinions about individuals. The atmosphere had changed and questions previously regarded as finally settled were found to be worthy of discussion. Individuals were no longer pigeon-holed in this or that category; some with a wholly undesirable reputation had reluctantly to be conceded one or more good qualities. It may be that the somewhat narrow attitude of mind engendered by school life was adequately corrected by subsequent influences, but it is hard to believe there is no room for more systematised education in wide thinking at that period of life when the mind is most impressionable and most ready to form habits of permanent value. According to our newspapers the education of the working-class children has again this narrow outlook with a socialistic bias, and is indifferent to other points of view. This being so, it should not cause surprise if they experience mental and other conflicts in later life. This is not altogether a frivolous utterance on my part. It can hardly be disputed that a large factor in present-day social unrest is of psychological origin, and that broader education on the lines I have just indicated would not only serve mental but social hygiene.

SUMMARY AND CONCLUSION.

There are other aspects of mental hygiene concerned with schools and education, especially in relation to hours of sleep and work, but these have received attention elsewhere, and I will not detain you with them now. Having trespassed on territory where I have no authority I will be content with the inroad I have made and retrace my steps. To recapitulate, mental hygiene is a young plant worth cultivating and full of promise. Its growth must be promoted: (1) By no longer misnaming mental disorders as nervous. It is perhaps time to be courageous and to call institutions hospitals or clinics for minor mental disorders in preference to functional nervous disorders; (2) by getting the confusion between ethical and medical

principles as they affect health; (3) by teaching elementary principles of psychopathology and psychotherapy to students in order that the general practitioner may take a prominent part in maintaining the mental health of individuals; these subjects, being more important than much that the student is called upon to know, should be introduced into the syllabus for examinations and questions set upon them; (4) by obtaining general recognition for the multiplicity of factors concerned in producing mental as well as other disorders; (5) by giving due prominence to fatigue as a factor in psychopathology and to rest in psychotherapy; (6) by encouraging education in thinking as an important preventive measure.

I am conscious that I have displayed my admiration for, and belief in, much of the newer psychotherapy, but I am not really unmindful of what has gone before. The present condition of psychiatry and of mental hygiene—immature as it is, but full of promise for the future—could not have been reached without the mass of invaluable research undertaken and carried out in the past by many great workers in this department of medicine. If a flood of light has been thrown on the results of their labours by a later generation let us bear witness to the fact that it only adds a brighter lustre to their names.

THE INFLUENCE OF THE GREAT WAR ON MODERN SURGERY.

Introductory Remarks at the Opening of the Surgical Section of the South African Medical Congress, held at Durban, Oct. 4th, 1920.

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The Science and Art of Surgery.

It has always been customary to speak of the science and art of surgery. The science comprises the whole subject of the ætiology, pathology, symptomatology, diagnosis, prognosis, and the principles underlying the treatment of those conditions which are commonly classed under surgery. The art consists of the application of the science in practice, and deals chiefly with the treatment of these surgical conditions, especially their operative treatment.

The science, with the principles governing it, forms, or ought to form, the basis or skeleton of the surgical fabric, and the art supplies a wealth of detail, important also, but accessory, which goes to make it complete. Indeed, the relation of the science to the art in surgery might be represented by that of the bricks to the mortar in a building. They are both important for efficiency, but the former is the more so by far.

Good surgical judgment depends on a thorough grip of the science of surgery, with its involved principles, and bears directly on the practice of the art by deciding, as a result of diagnosis and prognosis, what treatment shall be adopted, whether non-operative or operative, and, if the latter, what operation will be best suited for the case, and when and how it shall be performed. The actual carrying out of these measures introduces the subject of the manual dexterity of the operator, of an importance not to be minimised, which, if good, is attractive and impressive to the onlooker and usually beneficial to the patient, but which, in the absence of good judgment, may be a positive danger.

Military and Civil Surgery Compared.

Before one can appreciate the influence of the great war on modern surgery several points must be taken into consideration, not the least of which is the relation which the surgery of war bears to that of civil life. In war surgery the conditions to be dealt with are essentially those of injury in its various phases, and the patients, up to the time of receiving the injury, were physically very fit, often exceptionally so. In civil surgery, on the other hand, the conditions requiring surgical assistance are chiefly those of disease, while the general health of the patient has

usually been impaired in greater or lesser degree, depending upon the nature of the disease and its duration.

In war surgery there is not in a large proportion of the cases a great deal of necessity for the exercise of much judgment for several reasons—e.g., the simplicity of the condition present, the physical fitness of the patient and his excellent recuperative power, and also the fact that a large part of the recognised treatment can be efficiently carried out automatically, according to rule. In civil surgery the condition is often involved and complicated and the patient's health is impaired, so that his resistance and recuperative power are undetermined. In consequence, to determine correctly whether an operation is indicated, and if so what it will be, according to what the patient will stand and his chances of recovery, may be of the utmost difficulty and requiring great acumen on the part of the surgeon.

Pathology and Diagnosis.

Pathology in war surgery is simple in comparison with that in civil practice. In the former it is under observation from its inception, is more or less precise and well defined, and is that of injury, including its causation, its effects, both general and local, the reaction to it, and its complications. In civil surgery, however, the whole range of pathology is included, here complicated by the fact that in it one has commonly to deal with developed disease, which has only lately come under observation, and presents numerous ramifications or superadded conditions which render it difficult. Added to this, the incomplete knowledge of the causation of many diseases leads to obscurity and lack of precision.

In war the diagnosis is nearly always to some extent, and often completely, made for the surgeon. There is an entrance wound, a tract, and perhaps an exit wound. Where a foreign body is retained X rays will in most cases localise it. The diagnosis, therefore, if not obvious, depends on a knowledge of the anatomy of the part and the structures likely to be involved. But in civil surgery, while in many cases diagnosis is easy, in a considerable proportion of them it may be very difficult or even impossible.

Prognosis.

Prognosis, too, is relatively easy in war surgery, as there is present a definite amount of damage, with or without a foreign body retained, and in most cases an acute infection, all of which are known perhaps before the customary cleaning-up operation has been performed. Moreover, prognosis is not often asked for, at any rate in the early stages, and it is chiefly a matter of personal interest to the surgeon. Later, however, prognosis increases in importance, chiefly in view of the assessing of any pension which may be entailed. But in civil surgery the case is not by any means parallel. Prognosis is then usually much more difficult as definite data are often impossible to obtain. Where diagnosis is difficult or impossible prognosis itself necessarily suffers. Furthermore, in civil practice prognosis is overwhelmingly important for two main reasons: (1) it is the chief thing the patient cares about and wants to know—the diagnosis with him usually takes a very secondary position; and (2) the choice of the treatment which will be most suitable for the particular case is wholly the outcome of it.

Treatment.

In war, where the pathology was ordinarily represented by a wound, usually grossly infected, caused by a missile—in most cases a shell-fragment—and associated with a varying amount of damage to surrounding structures, it might be said that the almost universal treatment indicated was operation; surgeons were not really able to perform all the operations which were advisable. At the same time the greater the proportion of operations performed the better the results obtained among the wounded. In addition, however, to this routine of operation and partly dependent on it—pre-operative diagnosis, though chiefly and especially in the front areas, the result of the rush of work—was often necessarily imperfect and rough, so that the operation was often embarked upon with no

operative scheme thought out, reliance being placed upon what was found during its progress for determining what procedure should ultimately be followed. In civil surgery, on the contrary, the question cannot be so easily disposed of. The whole subject is so directly the outcome of diagnosis and prognosis that good treatment cannot be systematically carried out apart from them. The first point to be decided—an important one from the patient's point of view—is whether non-operative or operative measures will be necessary. Non-operative measures undoubtedly have the prior claim; it is only when these measures have failed or are judged likely to fail that operative interference is indicated. Operation, therefore, in civil practice is by no means so universally indicated, or so generally employed as in war surgery; any semblance of automatism is thus impossible in good work. Moreover, in civil practice the good surgeon prepares the scheme of procedure beforehand and works to his plan; this procedure was often impossible in war.

From the point of view of wound treatment also there is an essential difference. In war the wound is already produced when the patient comes under the surgeon's care, and the common complications are present—viz., shock, hæmorrhage, and sepsis, together with effects of interference with the function of the part; treatment therefore consists mainly in combating these conditions. In civil life the wound is usually made by the surgeon, and its treatment consists essentially in prevention of the occurrence of any of these complications.

Military and Civil Points of View.

In warfare, when everything was judged from the army standpoint, the limits of surgery, especially in rush periods, were in great measure determined by necessity of production of the maximum of benefit to the greatest number of wounded; in civil practice the individual is all-important, and surgery is employed to produce the maximum of benefit to the individual. In general terms war surgery, especially in forward areas at busy times, is that of injury of the multitude, whereas civil surgery is that of disease of the individual. The assessment, therefore, of the influence of the war on modern surgery is by no means straightforward or easy; it is apt to be greatly exaggerated by those whose only surgical experience is that of war, but it may be considerably underestimated by those who saw none of it. At the same time, surgery of front areas was in many respects a different problem from that of the base, where it tended to resemble much more closely similar surgery in civil practice.

Possible Effects of War Surgery on Civil Practice.

(1) *Pernicious.*—Such influences of war surgery are most likely to be met in those in whom the latter represents the only surgical experience gained. Many possible circumstances go to show how hopelessly inadequate it is to fit a man for civil work, some of which have already been mentioned in contrasting war and civil surgery. Overwhelming rushes of work and attempts to render the greatest amount of service to the maximum number of wounded men entailed in many cases a very imperfect investigation. Diagnosis was, as a result, correspondingly imperfect, except in so far as there was a wound present, with or without the retention of the missile, and probably with certain salient indications of the grosser damage done. Prognosis, being very rarely asked for, lost a great measure of its importance, and was chiefly of interest to the surgeon himself. Operation, where possible, was the rule; the term was almost synonymous with treatment. No carefully-thought-out scheme could ordinarily be made, as the complete extent of the destruction could not be determined before opening up the wound, and operative measures depended on the findings. Further, there was usually no critic present, and the surgeon had an entirely free hand. It was easy, and often legitimate, to attribute failures to wound conditions—extent of damage or severity of infection—so that the surgeon need never attach any blame to himself.

Again, remarkable and unexpected recoveries took place, such as one was quite unaccustomed to see in civil practice. In the latter, where a serious operation

was necessary one was wont to regard fall of blood pressure below 100 mm. of mercury, or rise of pulse-rate above 100, as a danger signal, but in war surgery this was not so. Before blood transfusion was added to the surgeon's armamentarium a doubtful prognosis had always been given in an abdominal injury with B.P. below 100 mm., but in wounds of the limbs recovery might well be expected with a B.P. of 80 mm. of Hg. No doubt in these cases the accessory measures adopted to combat shock, &c., by suitable anaesthetics, saline administration, and other resuscitatory means, were to a considerable extent responsible for the recovery, but so was undoubtedly the patient's own reserve, resulting from the fact that he was absolutely fit before being wounded. Later, with the advent of blood transfusion, cases with a B.P. of even less than 60 mm. of Hg were not rarely operated upon with success. Such recoveries allowed of much greater operative risks being taken than are permissible, and gave rise to a much more optimistic outlook than is possible in civil work.

It is obvious, then, that in war surgery all circumstances tended to reduce the importance of judgment, especially pre-operative judgment, and there was ample scope for its being omitted altogether. It was in consequence of this that one of my colleagues once said to me, "Do you know, whenever I see a man in the street who has lost a limb I always say to myself, 'I wonder if that was a necessary amputation or an ambitious one.'"

In civil surgery a thorough investigation of cases is essential, leading to good diagnosis and prognosis, and so to the choice of the best treatment, which, if operative, is carefully thought out and planned before it is launched upon. Good judgment in civil practice, therefore, if based on war experience alone, must necessarily be quite out of the question because of the essential differences between them, and it must be borne in mind that it is upon good judgment above all else that good work in this branch of surgery depends.

(2) *Beneficial*.—Such influence of the surgery of the late war on civil practice is undoubted, though limited. We see evidence of it in several directions, the chief of which are: (a) the popularising of already existing procedures; (b) re-births of old ones; and (c) new discoveries and their applications. Of these the first is the most prominent as being the most commonly met. It is not my object to review in detail all the possible benefits of greater or lesser degree derived from the surgery of the recent war; I shall confine myself to some general considerations, with special mention of a few only of these influences.

An outstanding and striking feature is the fact that the fundamental principles of surgery have not been affected by the war at all: it is the practice of surgery which bears its imprint. In other words, although the science of surgery has been advanced to some extent by increasing or modifying our knowledge, the chief effects of the war are seen in connexion with the art of surgery, mostly taking the form of new or modified methods of treatment. It is important to bear in mind that the general principles of treatment have not been affected; alterations mainly are confined to technical details. Numerous examples of this could be cited, but one is sufficient as an illustration—viz., the calliper extension treatment of fractured femurs, introduced by Dr. M. G. Pearson of Durban. Where it is indicated its efficiency is unquestionable, and no one could fail to speak in highest terms of it.

Principles of Local Treatment.

These principles are merely an offshoot of the general principles of treatment. My late chief, Rutherford Morison, and I myself have taught them for several years past, as follows: (1) prevent extension of the injury—e.g., involvement of vessels, nerves, skin, &c.—this necessarily entails examination to see if any such extension has occurred; (2) reduce the fracture; (3) maintain the reduction; (4) restore the function of the arm.

Reduction of the fracture is effected by extension and traction; calliper extension is thus a means of

carrying out the second principle of treatment. Advances in surgery which have arisen from war work must necessarily be associated with those conditions of shock, hæmorrhage, and sepsis which are the common complications of war injuries.

Shock.—Much work was done in connexion with shock, the result being to clear away a good deal, but by no means all, of the confusion surrounding it. Most of the old accepted theories have been, at any rate in part, exploded, especially the occurrence of paralysis of the vaso-motor centre as a causal factor. At the same time many observations incorporated in various theories have proved to be correct, though often wrongly explained. The results of the investigations of Dale and Laidlaw on the action of histamin, whereby profound shock could be produced by the injection of this substance, and the establishment of shock-production by muscle crushing (Bayliss), went to show that in war injuries at all events absorption of toxins from damaged tissues, especially muscles, was a very important factor in determining shock. This establishment of causation of shock by means of a toxic chemical substance circulating in the blood does not in any way negative causation by other recognised agents—e.g., mechanical, electrical, chemical, thermal, &c. From a practical point of view the chief result has been to confirm J. D. Malcolm's views, stated as far back as 1905, that in shock all the vessels are constricted, and the blood concentrated and reduced in volume. Indeed, in practice, the chief, if not the only, important factor is the deficiency in volume of the circulating blood, and the realisation of this fact places the treatment of shock on a sound basis. Apart from such general considerations as rest, posture, and warmth the essential feature is to increase the volume of blood in circulation; this increase may be assisted in the early stages by auto-transfusion, but later must be effected by the administration of fluid in the most suitable manner. Most surgeons will agree that Bayliss's gum saline is superior to and more lasting in its effects than normal saline, but such a view is not universal, and administration of gum saline is not always free from risk. Blood transfusion is not indicated except where hæmorrhage has occurred. Stimulants are of secondary importance, are not indicated in the first place, and should only be given with or after the administration of fluid, while sedatives should be confined to controlling excessive pain or restlessness. One of the greatest aids in the treatment of shocked patients during the latter part of the war was the advent of gas and oxygen as an anaesthetic; its introduction into general use was one of the most important and beneficial events of the campaign.

Hæmorrhage.—In treatment of hæmorrhage vessel suture proved disappointing, being seldom possible on account of damage both to the vessel and to the surrounding tissues. A point which was very strongly impressed on one—a point emphasised by Guthrie in his commentaries on the Napoleonic wars—was the necessity of securing the bleeding-point when controlling hæmorrhage. Examples of this could be multiplied, but two will be sufficient.

(1) On the Somme in 1916 a patient was admitted with a small entrance wound over the upper part of the right pectoralis major, a large hæmatoma of the axilla, and an absent radial pulse. The wound was excised and some clot removed to expose the wounded vessel, but a gush of blood necessitated plugging. The first part of the axillary vessels was now exposed and a temporary ligature applied. The plug was removed, but as bleeding was still excessive it had to be reinserted. A distal temporary ligature was now applied to the third part of the axillary vessels and the plug taken out again. Once more there was brisk hæmorrhage, so there was nothing to be done but to plug till all the surrounding clot could be removed and the vessels then followed up to the seat of injury. It was found that both subscapular artery and vein had been shot off from the corresponding trunks, so that no ligature except one at the site of rupture could have been of any avail—i.e., ligature of both axillary artery and vein and also of both subscapular vessels.

(2) This example occurred in the advance in 1918. The patient had a large wound in the flexure of the left elbow with much muscle destruction. At a field ambulance the brachial artery was tied at the middle of the arm and no local attempt was made to arrest the bleeding. Four hours

later he came under my care with his wound still bleeding considerably. It was cleaned up and excised, and it was found that the radial artery had been shot away about half an inch from the bifurcation of the brachial, leaving the ulnar artery in direct continuation with the main trunk. It was obvious that ligation of the brachial, with division of the radial and the damage done to the collaterals by the large wound would probably lead to gangrene, so I decided to take off the brachial ligation. This I did, and the pulse in the ulnar artery was re-established at once, but I noted that the ligation had been tied extremely tightly. The ultimate result was that thrombosis occurred later in the brachial and gangrene developed, necessitating amputation of the arm. This I had no doubt could have been avoided but for the proximal ligation of the main vessel of the limb, which, as I have said, did not efficiently control the hemorrhage.

A somewhat revolutionary observation was made by Sir George Makins to the effect that in cases of injury to the main vessels gangrene is more likely to follow if occlusion of the artery alone is produced than if that of both artery and vein occurs. This observation has been strongly confirmed by Hamilton Drummond in his experiments on ligation of the intestinal vessels in animals; it has most important applications in civil practice—e.g., in the treatment of vessel injuries in the limbs, senile gangrene, &c.

Blood Transfusion.

The value of blood transfusion in cases of extreme hemorrhage was, however, one of the outstanding features of the campaign. This, again, was no new measure, but its popularisation led to the saving of very many lives. In the early days our only stand-by was the injection of saline solution, but the latter was known only to remain in the blood stream for about half an hour, so that it might tide over a crisis, but had little permanent effect; the worse the hemorrhage became the less was its efficiency. Numerous modifications were tried without benefit until the introduction of Bayliss's gun saline, which owing to its colloid content had a more lasting effect than the others. At the same time it was recognised that after a certain degree of hemorrhage no form of saline was of any use, and it was in such cases that blood transfusion worked miracles. The indications for it remained for the most part empirical and were usually that other means of resuscitation at our disposal had failed. At the Fifth International Congress of Surgery, held at Paris in July, 1920, Dépage and Govaerts formulated two useful practical indications presenting clinical conditions in which the patient will not recover without blood-transfusion—viz., where the systolic B.P. rapidly falls below 80 mm. of Hg., and shows no sign of recovery in a few hours, and where the red-cell count falls below 4,000,000 in six hours from the commencement of the bleeding. It is interesting to remember that in animals the removal of 45 per cent. of the blood leads to an 80 per cent. mortality (Richet). Moss's classification of bloods has removed the main source of danger attending blood transfusion; unpleasant reactions may still be encountered owing to incompatibility of the donor's serum and the recipient's corpuscles, but fortunately they are not of serious moment. Of the various methods of administration the indirect is the easier and less likely to fail, and personally I have always preferred the administration of whole blood by the Kimpton-Brown paraffin tube, though no doubt the giving of citrated blood is more generally applicable in civil work. The following cases suggest the value of blood transfusion.

CASE 1.—Patient admitted to the advanced abdominal centre, of which I was in charge, in 1917, 18 hours after being hit by a piece of shell over the right anterior costal margin, the track of the missile passing backwards and towards the mid-line. His pulse was rapid but quickly got worse, and he was operated on within two hours of the receipt of his injury. There was a large rent in his liver from which blood was pouring, a very unusual thing to see. A clamp on the free border of the foramen of Winslow controlled the bleeding until the liver could be sutured. Two large holes in the anterior and posterior walls of the stomach, each admitting two fingers, were closed, and the shell fragment removed. The pulse, in spite of administration of gum saline and brandy, was 130 at the end of the operation; in spite of every available measure it could not be reduced, and he died at the end of 30 hours. Had blood transfusion been possible I feel sure he would have been saved.

CASE 2.—Patient came under my care just after the retreat in 1918 with a large wound over the right anterior chest, with sucking hemo-pneumothorax; he was passing almost pure blood in his urine. Pulse was 124, small and weak; he was pallid and in a state of profound collapse. In spite of all ordinary means of resuscitation he had gone up to 136 at the end of two hours, and I was asked by the medical officer to intervene as otherwise he was obviously going to die. He was taken to the theatre and blood transfusion done, two pints being given. Gas and oxygen anaesthesia was carried out, and an extensive operation performed, lasting almost an hour. A considerable part of three ribs was removed, the wound excised, the right chest cleaned out and swabbed with dakin, a large rent in the diaphragm repaired, extensive laceration of the liver cleaned up and sutured, and the right kidney removed as it was damaged beyond all hope of recovery. Owing to the destruction of the chest wall it was impossible to close the parietal wound, and the pleural cavity was therefore shut off by suturing the diaphragm to the margin of the aperture. The whole wound was then closed, after bipping, with a drain down to the renal region. At the end of the operation the pulse was 105, and subsequently the patient never gave us the slightest cause for anxiety. His chest recovered completely in spite of a bacteriological report that some aspirated fluid contained a streptococcus, and there was no supuration in the wound. This type of case was by no means uncommon.

A detailed consideration of wound infection, which includes sepsis, would fill a volume and is obviously impossible for me to give. The greater part of the bacteriology and most of the methods of treatment call for no description.

Excision and suture.—Secondary suture of wounds is almost as old as surgery itself and represents healing by union of two granulating surfaces. Excision of wounds and primary or delayed primary suture introduce no new principle, but are simply the application of an old one to war wounds. The removal of a focus of disease has always been one of the objects of operative treatment, and the realisation that a war wound is a focus of disease, not because of the destruction produced but because of the infection almost invariably present, gives this procedure its correct status. Such removal was one of the greatest boons of the latter part of the war; its success depended on the depth to which the infecting organisms had penetrated and the extent of the excision. A purely arbitrary division of wounds was made, describing them as contaminated or infected, the former comprising those in which infection was still superficial, the latter those in which it had penetrated into the tissues. Up to about 18 hours after the receipt of injury the wounds might be classified as contaminated, though one must acknowledge having seen patients dead of a general infection within 16 hours of being hit.

Drainage.—In wounds of the serous cavities, the chief being the peritoneal, pleural, cerebro-spinal, and articular, it soon became evident that drainage was for the most part inadvisable, was often futile, and in many cases a real danger and so contra-indicated. For example, in the pleural cavities and joints the risk of infection, in the presence of drainage, amounted almost to a certainty. It therefore became less and less frequently employed until the routine procedure was complete closure of all these cavities, with steadily improving results.

Bipp.—Of all the numerous chemical substances introduced for the purpose of combating infection, the outstanding one, in my opinion, especially from the point of view of its utility in civil surgery, is bipp. In war wounds, in spite of the general consensus of opinion to the contrary, infection with hemolytic streptococci or anaerobes is no contra-indication to suture if the wound has been bipped. In civil practice, on the other hand, its value, mainly in chronic, but also in acute, sepsis cannot be over-estimated. Thus in six consecutive cases of chronic discharging empyema five of my own and one of my late house surgeons, Dr. Cook, with sinuses varying in duration up to a year, and cavities holding up to a pint, the chest has been completely sewn up after bipping. There was complete success in all of them, no subsequent trouble arising. In acute abscesses, too, the value of bipp is established. One of two procedures may be followed. Where, after the usual technique, the whole cavity can be obliterated

was necessary one was wont to regard fall of blood pressure below 100 mm. of mercury, or rise of pulse-rate above 100, as a danger signal, but in war surgery this was not so. Before blood transfusion was added to the surgeon's armamentarium a doubtful prognosis had always been given in an abdominal injury with B.P. below 100 mm., but in wounds of the limbs recovery might well be expected with a B.P. of 80 mm. of Hg. No doubt in these cases the necessary measures adopted to combat shock, &c., by suitable anaesthetics, saline administration, and other resuscitatory means, were to a considerable extent responsible for the recovery, but so was undoubtedly the patient's own reserve, resulting from the fact that he was absolutely fit before being wounded. Later, with the advent of blood transfusion, cases with a B.P. of even less than 60 mm. of Hg were not rarely operated upon with success. Such recoveries allowed of much greater operative risks being taken than are permissible, and gave rise to a much more optimistic outlook than is possible in civil work.

It is obvious, then, that in war surgery all circumstances tended to reduce the importance of judgment, especially pre-operative judgment, and there was ample scope for its being omitted altogether. It was in consequence of this that one of my colleagues once said to me, "Do you know, whenever I see a man in the street who has lost a limb I always say to myself, 'I wonder if that was a necessary amputation or an ambitious one.'"

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An outstanding and striking feature is the fact that the fundamental principles of surgery have not been affected by the war at all: it is the practice of surgery which bears its imprint. In other words, although the science of surgery has been advanced to some extent by increasing or modifying our knowledge, the chief effects of the war are seen in connexion with the art of surgery, mostly taking the form of new or modified methods of treatment. It is important to have not been that the general principles of treatment have not been affected; alterations mainly of this could be cited, but details. Numerous examples of this could be cited, but one is sufficient as an illustration—viz., the calliper extension treatment of fractured femurs, introduced by Dr. M. G. Pearson of Durban. Where it is indicated its efficiency is unquestionable, and no one could fail to speak in highest terms of it.

Principles of Local Treatment.

These principles are merely an offshoot of the general principles of treatment. My late chief, Rutherford Morison, and I myself have taught them for several years past, as follows: (1) prevent extension of the injury—e.g., involvement of vessels, nerves, skin, &c.—this necessarily entails examination to see if any such extension has occurred; (2) reduce the fracture; (3) maintain the reduction; (4) restore the function of the part.

Reduction of the fracture is effected by extension and manipulation; calliper extension is thus a means of

carrying out the second principle of treatment. Advances in surgery which have arisen from war work must necessarily be associated with those conditions of shock, hæmorrhage, and sepsis which are the common complications of war injuries.

Shock.—Much work was done in connexion with shock, the result being to clear away a good deal, but by no means all, of the confusion surrounding it. Most of the old accepted theories have been, at any rate in part, exploded, especially the occurrence of paralysis of the vaso-motor centre as a causal factor. At the same time many observations incorporated in various theories have proved to be correct, though often wrongly explained. The results of the investigations of Dale and Laidlaw on the action of histamin, whereby profound shock could be produced by the injection of this substance, and the establishment of shock-pro-duction by muscle crushing (Bayliss), went to show that in war injuries at all events absorption of toxins from damaged tissues, especially muscles, was a very important factor in determining shock. This establishment of causation of shock by means of a toxic chemical substance circulating in the blood does not in any way negative causation by other recognised agents—e.g., mechanical, electrical, chemical, thermal, &c. From a practical point of view the chief result has been to confirm J. D. Macleod's views, stated as far back as 1905, that in shock all the vessels are constricted, and the blood concentrated and reduced in volume. Indeed, in practice, the chief, if not the only, important factor is the deficiency in volume of the circulating blood, and the realisation of this fact places the treatment of shock on a sound basis. Apart from such general considerations as rest, position, and warmth the essential feature is to increase the volume of blood in circulation; this increase may be assisted in the early stages by auto-transfusion, but later must be effected by the administration of fluid in the most suitable manner. Most surgeons will agree that Bayliss's gum saline is superior to and more lasting in its effects than normal saline, but such a view is not universal, and administration of gum saline is not always free from risk. Blood transfusion is not indicated except where hæmorrhage has occurred. Stimulants are of secondary importance, are not indicated in the first place, and should only be given with or after the administration of fluid, while sedatives should be confined to controlling excessive pain or restlessness. One of the greatest aids in the treatment of shocked patients during the latter part of the war was the advent of gas and oxygen as an anæsthetic; its introduction into general use was one of the most important and beneficial events of the campaign.

Hæmorrhage.—In treatment of hæmorrhage vessel suture proved disappointing, being seldom possible on account of damage both to the vessel and to the surrounding tissues. A point which was very strongly impressed on one point emphasised by Guthrie in his commentaries on the Napoleonic wars—was the necessity of securing the bleeding-point when controlling hæmorrhage. Examples of this could be multiplied, but two will be sufficient.

(1) On the Somme in 1916 a patient was admitted with a small entrance wound over the upper part of the right pectoralis major, a large hæmatoma of the axilla, and an absent radial pulse. The wound was excised and some clot removed to expose the wounded vessel, but a gush of blood necessitated plugging. The first part of the axillary vessels was now exposed and a temporary ligature applied. The plug was removed, but as bleeding was still excessive it had to be reinserted. A distal temporary ligature was now applied to the third part of the axillary vessels and the plug taken out again. Once more there was brisk hæmorrhage, so there was nothing to be done but to plug till all the surrounding clot could be removed and the vessels then followed up to the seat of injury. It was found that both subscapular artery and vein had been shot off from the site of rupture could have been of any avail—i.e., ligature of both axillary artery and vein and also of both subscapular vessels.

(2) This example occurred in the advance in 1918. The patient had a large wound in the flexure of the left elbow with much muscle destruction. At a field ambulance the brachial artery was tied at the middle of the arm and no local attempt was made to arrest the bleeding. Four hours

later he came under my care with his wound still bleeding considerably. It was cleaned up and excised, and it was found that the radial artery had been shot away about half an inch from the bifurcation of the brachial, leaving the ulnar artery in direct continuation with the main trunk. It was obvious that ligation of the brachial, with division of the radial and the damage done to the collaterals by the large wound would probably lead to gangrene, so I decided to take off the brachial ligation. This I did, and the pulse in the ulnar artery was re-established at once, but I noted that the ligation had been tied extremely tightly. The ultimate result was that thrombosis occurred later in the brachial and gangrene developed, necessitating amputation of the arm. This I had no doubt could have been avoided but for the proximal ligation of the main vessel of the limb, which, as I have said, did not efficiently control the hemorrhage.

A somewhat revolutionary observation was made by Sir George Makins to the effect that in cases of injury to the main vessels gangrene is more likely to follow if occlusion of the artery alone is produced than if that of both artery and vein occurs. This observation has been strongly confirmed by Hamilton Drummond in his experiments on ligation of the intestinal vessels in animals; it has most important applications in civil practice—e.g., in the treatment of vessel injuries in the limbs, senile gangrene, &c.

Blood Transfusion.

The value of blood transfusion in cases of extreme hemorrhage was, however, one of the outstanding features of the campaign. This, again, was no new measure, but its popularisation led to the saving of very many lives. In the early days our only stand-by was the injection of saline solution, but the latter was known only to remain in the blood stream for about half an hour, so that it might tide over a crisis, but had little permanent effect; the worse the hemorrhage became the less was its efficiency. Numerous modifications were tried without benefit until the introduction of Bayliss's gum saline, which owing to its colloid content had a more lasting effect than the others. At the same time it was recognised that after a certain degree of hemorrhage no form of saline was of any use, and it was in such cases that blood transfusion worked miracles. The indications for it remained for the most part empirical and were usually that other means of resuscitation at our disposal had failed. At the Fifth International Congress of Surgery, held at Paris in July, 1920, Dépage and Govaerts formulated two useful practical indications presenting clinical conditions in which the patient will not recover without blood-transfusion—viz., where the systolic B.P. rapidly falls below 80 mm. of Hg., and shows no sign of recovery in a few hours, and where the red-cell count falls below 4,000,000 in six hours from the commencement of the bleeding. It is interesting to remember that in animals the removal of 45 per cent. of the blood leads to an 80 per cent. mortality (Richet). Moss's classification of bloods has removed the main source of danger attending blood transfusion; unpleasant reactions may still be encountered owing to incompatibility of the donor's serum and the recipient's corpuscles, but fortunately they are not of serious moment. Of the various methods of administration the indirect is the easier and less likely to fail, and personally I have always preferred the administration of whole blood by the Kimpton-Brown paraffin tube, though no doubt the giving of citrated blood is more generally applicable in civil work. The following cases suggest the value of blood transfusion.

CASE 1.—Patient admitted to the advanced abdominal centre, of which I was in charge, in 1917, 14 hours after being hit by a piece of shell over the right anterior costal margin, the track of the missile passing backwards and towards the mid-line. His pulse was rapid but quickly got worse, and he was operated on within two hours of the receipt of his injury. There was a large rent in his liver from which blood was pouring, a very unusual thing to see. A clamp on the free border of the foramen of Winslow controlled the bleeding until the liver could be sutured. Two large holes in the anterior and posterior walls of the stomach, each admitting two fingers, were closed, and the shell fragment removed. The pulse, in spite of administration of gum saline and brandy, was 130 at the end of the operation; in spite of every available measure it could not be reduced, and he died at the end of 50 hours. Had blood transfusion been possible I feel sure he would have been saved.

CASE 2.—Patient came under my care just after the retreat in 1918 with a large wound over the right anterior chest, with sucking hemo-pneumothorax; he was passing almost pure blood in his urine. Pulse was 124, small and weak; he was pallid and in a state of profound collapse. In spite of all ordinary means of resuscitation his pulse had gone up to 136 at the end of two hours, and I was asked by the medical officer to intervene as otherwise he was obviously going to die. He was taken to the theatre and blood transfusion done, two pints being given. Gas and oxygen anaesthesia was carried out, and an extensive operation performed, lasting almost an hour. A considerable part of three ribs was removed, the wound excised, the right chest cleaned out and swabbed with iodoform, a large rent in the diaphragm repaired, extensive laceration of the liver cleaned up and sutured, and the right kidney removed as it was damaged beyond all hope of recovery. Owing to the destruction of the chest wall it was impossible to close the parietal wound, and the pleural cavity was therefore shut off by suturing the diaphragm to the margin of the aperture. The whole wound was then closed, after bipping, with a drain-down to the renal region. At the end of the operation the pulse was 108, and subsequently the patient never gave us the slightest cause for anxiety. His chest recovered completely in spite of a bacteriological report that some aspirated fluid contained a streptococcus, and there was no suppuration in the wound. This type of case was by no means uncommon.

A detailed consideration of wound infection, which includes sepsis, would fill a volume and is obviously impossible for me to give. The greater part of the bacteriology and most of the methods of treatment call for no description.

Excision and suture.—Secondary suture of wounds is almost as old as surgery itself and represents healing by union of two granulating surfaces. Excision of wounds and primary or delayed primary suture introduce no new principle, but are simply the application of an old one to war wounds. The removal of a focus of disease has always been one of the objects of operative treatment, and the realisation that a war wound is a focus of disease, not because of the destruction produced but because of the infection almost invariably present, gives this procedure its correct status. Such removal was one of the greatest boons of the latter part of the war; its success depended on the depth to which the infecting organisms had penetrated and the extent of the excision. A purely arbitrary division of wounds was made, describing them as contaminated or infected, the former comprising those in which infection was still superficial, the latter those in which it had penetrated into the tissues. Up to about 18 hours after the receipt of injury the wounds might be classified as contaminated, though one must acknowledge having seen patients' dead of a general infection within 16 hours of being hit.

Drainage.—In wounds of the serous cavities, the chief being the peritoneal, pleural, cerebro-spinal, and articular, it soon became evident that drainage was for the most part inadvisable, was often futile, and in many cases a real danger and so contra-indicated. For example, in the pleural cavities and joints the risk of infection, in the presence of drainage, amounted almost to a certainty. It therefore became less and less frequently employed until the routine procedure was complete closure of all these cavities, with steadily improving results.

Bipp.—Of all the numerous chemical substances introduced for the purpose of combating infection, the outstanding one, in my opinion, especially from the point of view of its utility in civil surgery, is bipp. In war wounds, in spite of the general consensus of opinion to the contrary, infection with hemolytic streptococci or anaerobes is no contra-indication to suture if the wound has been bipped. In civil practice, on the other hand, its value, mainly in chronic, but also in acute, sepsis cannot be over-estimated. Thus in six consecutive cases of chronic discharging empyema five of my own and one of my late house surgeons, Dr. Cook, with sinuses varying in duration up to a year, and cavities holding up to a pint, the chest has been completely sewn up after bipping. There was complete success in all of them, no subsequent trouble arising. In acute abscesses, too, the value of bipp is established. One of two procedures may be followed. Where, after the usual technique, the whole cavity can be obliterated

this is done by bipped silk sutures, and the dressing left for two weeks or so, when healing is probably found complete. Where, on the other hand, the cavity, because of its situation or ramifications, cannot be obliterated, it is better to pack lightly with bipped gauze and place over this a firm dressing, which is not changed for eight or ten days. At the end of this time the pack is removed and the cavity is usually found quite clean and lined with healthy granulations. A superficial dressing of flavine in castor oil, 1 in 1000, is applied and changed once a week. Healing is rapid and trouble of dressings minimal. In a letter dated August 3rd, 1920, Professor Rutherford Morison writes:—

"There can be no doubt that the fate of the bipped fat-grafts in cavities depends, in greatest part by far, on who puts them there. With us failure is uncommon. We have several cases in the Ministry of Pensions Hospital now of years' duration, and, after from 6 to 26 operations, cured at a first shot in from one to three months. Every bone is represented in our series."

Similarly, my late chief, Mr. W. G. Richardson, of Newcastle-upon-Tyne, systematically bipped and plated all the compound fractures which came to his wards, when a satisfactory reduction of the displacement could not be effected by other means. In a consecutive series of cases the results were consistently good, and none of the dreadful complications attributed to the plating of compound fractures was encountered.

Flavine.—Of the aniline dyes, flavine is perhaps the most commonly employed. There is no doubt of its efficacy as an antiseptic, and it may be used in a variety of ways. The chief use to which it is put by me is in a solution in castor oil, 1 in 1000, as a dressing in open wounds or sinuses, and changed once a week. I have seen no application which so perfectly prevents secondary infection in such cases. Sir John Bland-Sutton strongly supported its use in this respect to me, and had been using it for similar purposes.

Work Beyond the Scope of the Address.

In considering the effects dependent on interference with the special structure and function of the parts and the means of combating them, one might deal at length with the great stimulus which the war has had on bone and nerve surgery and the whole subject of orthopaedics, with the wonderful constructive work which has resulted. They are, however, beyond the scope of this address, and one hopes one may hear a good deal of them from others. Apart from blood transfusion and nitrous oxide and oxygen anaesthesia, they comprise the chief of those beneficial influences which one includes and "the popularising of already existing procedures." In the same way the freedom, ease, and safety with which intrathoracic operations were performed and the confidence with which they were embarked upon were a surprise to most surgeons, the effect being to destroy in great measure the timorous and almost mystic reticence with which the surgery of the chest was wont to be contemplated.

Ambrine.—One feels one ought not to terminate without a word in eulogy of this material, by which the treatment of superficial raw surfaces has been revolutionised. Apart from the simplicity, rapidity, and painlessness of the dressing and the remarkable comfort experienced by the patient after its application, the extraordinary rate of growth of epithelium under it and the consequent rapid healing which takes place, coupled with the minimal contraction of the scar and its mobility, give it a very sure place in the department of surgical technique. Many skin-grafting operations have been, and will continue to be, rendered superfluous by its use.

Summary and Conclusion.

To recapitulate the beneficial influences of the war on modern surgery, which have been mentioned in passing, categorised as suggested, we find that:—

1. The chief benefits arising from popularisation of already existing procedures are blood transfusion, nitrous oxide and oxygen anaesthesia, bone and nerve surgery, and orthopaedic constructive work. Though bone surgery has been merely referred to, mention must be made of the Thomas splint, which achieved a well-earned and well-deserved popularity.

2. Among "re-births" might be included a considerable portion of the present views of shock, the ligature of the bleeding point in arrest of hemorrhage, secondary suture of wounds, and excision of wounds and primary suture.

3. Finally, of "new discoveries and their applications" one has referred to bipp, flavine, ambrine, and the callipers employed for extension in cases of fracture.

It will be readily seen, therefore, as postulated at the outset, that the chief benefits in civil practice attributable to war surgery are intimately associated with that branch of civil surgery which is comparable to that of war—viz., injury, in its various relationships.

COMMENTARY ON A CASE OF HYSTERO-EPILEPSY WITH DELAYED PUBERTY

TREATED WITH TESTICULAR EXTRACT.

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THE following case of hystero-epilepsy, associated with delayed puberty, was observed in a twin, and successfully treated with testicular extract. The case has interested me from several points of view. One aspect, on which I will not enlarge because infantilism can occur in others than twins, is the association here of the two conditions. Another interesting point is the combination of physical and psychological factors in the causation of the mental disturbance. Without doubt the practical joke mentioned below was the starting-point of his "escape reaction" inducing fear processes which subsequently operated whenever associations were aroused—e.g., at eventide or when placed in company with strangers. One would deduce that on these occasions a hypersecretion of adrenaline occurred not equilibrated by the internal secretion of the gonads owing to their lack of development.

The urine was normal, but it is conceivable that eventually there might have ensued an acidosis from an adrenaline hyperglycemia; and then possibly, if death had not supervened from emaciation, from such a disturbance of the metabolic and nervous mechanisms a condition of epilepsy might have been the permanent sequel, the case being subsequently regarded as idiopathic epilepsy dating from puberty. This, however, is pure speculation, but the relation of the sex glands to the adrenals has been noted elsewhere. Baillof has shown that in women after ovariectomy, X ray treatment, and in those past the menopause, the effect of adrenaline injection upon the blood-sugar content is quicker and more pronounced and is produced by smaller doses than in normal women. Similar findings have resulted from experiments on rabbits.

History.—C. A. B., on June 24th, 1919, joined the navy as a boy at the age of 15 years 3 months, and was discharged suffering with epilepsy on August 6th following. Second in the family; the fellow twin (male) died at the age of five months of "double pneumonia." Parents, both country folk, alive and mentally and physically healthy. Investigation of family history elicited no hereditary taint. Up to the time he joined the navy he had been regarded as normal, and had not in childhood been the subject of convulsions, but after three weeks on the training ship had his first seizure. He explained that whilst asleep he was tumbled suddenly out of his hammock in practical joke. After this incident he had the seizure, followed by five others during the ensuing fortnight. Is somewhat vague as to exactly what happened at this time, but believes that on one occasion he bit his tongue in a fit, because it was very sore next morning. Believes on a few occasions he had warning of onset of a fit by development of dizziness lasting a few minutes.

From sick-bay of ship he was transferred to a naval hospital and discharged thence to home care on August 6th. During succeeding three weeks at home had seizures every day, and in the intervals between the seizures does not appear (relative description) to have had complete control of himself. Nevertheless he does not seem to have seriously injured himself, or even bitten his tongue, as constant watch was maintained to prevent any accident.

The practitioner in charge of the case writes:—

"I never saw such violent fits in any other patient. An interesting feature of the case was the clock-like periodicity of the fits for weeks. Evening after evening I used to get an urgent message to go down between 8 and 9 o'clock to see the lad, and the fit would last for over an hour. Next day he usually did not know I had

been with him or that he had had a fit. Latterly the fits occurred at other times during the day. A day or so before certification they were practically continuous, lasting for 10 to 12 hours. In the first fit I saw at 10 p.m. on August 13th, a bottle of his discharge from the lavy, his mouth foamed like the water in the lavatory. On the 14th I was with him from 10 p.m. to 12.30 a.m., and gave him chlorform on account of the extreme violence of the spasms. Bromide had no action, morphia was useless, but hyoscine controlled the attacks to some extent. In the first fit I witnessed he threw five strong men about like kittens."

On August 27th he was certified. The medical certificate stated:—

"Since 9 a.m. to-day (six hours ago) he has been in a condition of acute mania, trying to bite his mother and a neighbour and biting his father. The present condition began with idiopathic epilepsy of the very violent variety, on 1st August, epileptic, and culminating in the present condition of acute mania, with attempts to injure those who restrain him. I first saw him on August 6th and have attended him daily ever since. Attempts to bite and strike those holding him down began on August 23rd, according to statement of his father. The same informant tells me that since that date he has been restless even whilst asleep, twisting and turning about the whole time."

Condition on Admission.

On admission to hospital during the evening of August 27th he was in a confused state and was placed in a separate room under observation. At 9.30 p.m. he developed constantly recurring seizures (petit mal), followed by confusion and restlessness, during which he was biting and kicking the bed-clothes and crawling about on the floor and attempting to bite the legs of anyone who went near him. Manifestations of this character continued until 3.30 p.m. next day, when he became sufficiently quiescent to be hand-fed with bread and milk, but was unable to coördinate sufficiently well to articulate. The succeeding night he slept well and on the following day was calm enough to permit of a detailed examination of his physical state.

Examination.—Facial aspect immobile and indicative of anxiety and terror. He was sparsely nourished; musculature very poorly developed for his height. Hard palate slightly more arched than normal, and dental setting a little uneven. Auricular development good. Heart, lungs, and abdomen normal. Nervous system: power of right limb less than much reduced in comparison with left. Loss of power especially marked in grip; deep reflexes increased, but those on the right side all exaggerated when compared with opposite side in both upper and lower limbs. Anaesthesia difficult to determine satisfactorily, but there was a suggestion of a sock area of anaesthesia on the right side. Frequent arthritis to a very hesitating monosyllabic utterance. When standing he tended to fall to the right; on being led by the hand he dragged his right leg and leaned towards the left. External genitalia below normal in development for his age and presented marked infantile characteristics. Pubic hair hardly distinguishable from rest of downy appendages of abdominal skin. Skin of scrotum pink. Penis and testicles quite infantile.

Further history.—On August 31st he had a seizure (petit mal), followed by exhibition of various hysterical phenomena—e.g., crying alone, or hands and feet, throwing himself about on the floor; but appeared neither to hurt himself nor to realise what he was doing. On Sept. 1st he was able to be up and walk with assistance, but displayed the same neurological signs. Appeared to be in a state of terror; hesitating utterances; apparently afraid of "fits." Seizure that night at 7.30 p.m., during which he threw himself on the floor; during succeeding confusion talked disconnectedly about "Germans."

On the 2nd I decided to test the efficacy of testicular extract in the treatment of the case, acting on the supposition that the infantile sexual development and the functional manifestations were correlated. Didymin tablets (B. W. and Co.) were ordered, one daily.

On the 4th, owing to the exigencies of accommodation, it became necessary to transfer him to a dormitory under observation at 8.15 p.m. He did not appear to require any doses of sleeping near other patients; at 9 p.m. a fit (petit mal), restless for half an hour afterwards. On the 5th two tablets of didymin were given, one after breakfast and one after tea; a small dose of iron aperient mixture after midday meal. 14th: Abnormal neurological signs had now cleared; cessation of seizures and emotional excitement. Power of grip now equal. He had been up and dressed, taking exercise out of doors; brighter and more responsive, fed himself, ate heartily, and slept in observation dormitory. He was strong, but his fits were continued, 16th: Bright and cheerful. At 9.30 p.m. a seizure of short duration; did not bite tongue or pass urine; attack not followed by confusion or excitement. 17th: At 9.30 p.m. another seizure, followed by a period of excitement lasting for half an hour, then passed into confused, restless state. 23rd: Two seizures, one in afternoon and one at night. After latter became restless and confused; demanded to "see the Admiral" and desired "to blow up the ship." 25th: Didymin tablet renewed—one tablet daily. 29th: Slight seizure at 5 a.m., not followed by confusion or excitement. Oct. 1st: Seizure at 5.15 a.m., lasted half an hour; not followed by any cry; did not bite his tongue. No facial twitching and no cyanosis. Lying on a mattress at time of onset; all four limbs began to exhibit spasmodic movements which maintained the same intensity throughout the attack. At the clonic developed he raised himself into a paralytic posture and appeared to be caught by the right arm in his hand and experienced a hard knock, but as the head near the floor he

slowly touched the floor with shoulders and head; the whole proceeding resembled a conscious movement. When spasmodic movements ceased it was found that there had been no loss of sphincteric control, but he was very confused, though less than when he was not under treatment. Soon able to get up and dress, but was more irritable than usual, resembling the true epileptic. At 6.25 a.m. another seizure of a mild character, not followed by confusion or excitement; face drawn and expressionless. Put on two tablets daily. 31st: No seizures since tablets increased to two daily. Bright, brisk, and active in movements, intelligent, writes good letters to relatives and is visited by them without disturbance; assistant works regularly with a general utility party in fields and grounds. Eats well and sleeps in non-observation dormitory with other patients.

Development.—Weight on admission: 7 st. 5 lb.; present weight: 8 st. 6 lb. Developmentally a change has occurred which is remarkable considering the short time he has been under treatment. Pubic hair has grown both on scrotum and at base of penis, axillary hair is differentiating itself; skin of scrotum is showing adult brown pigmentation; testicles have increased in size, left larger than right; epididymis, especially in left, is easily palpable from bony of testicle; penis has changed from infantile form to one more resembling adult organ.

Nov. 5th: Two decaying teeth extracted without anaesthetic. No psychical disturbance followed. 10th: Didymin stopped. Dec. 5th: No seizures since Oct. 12th. Mental and bodily states have continued to show normal characteristics. Discharged to-day to home care, parents being advised to consult the doctor who had him in charge prior to a return to hospital, if necessarily should arise.

I am again indebted to the practitioner for the following notes concerning the subsequent treatment of the case:—

"Dec. 10th: Was very restless and his mother complained of occurrence of 'sensations.' 15th: I put him on didymin, one tablet bis die. 18th: He has had no return of the symptoms so I reduced it to one tablet daily. The boy certainly looks much better than when I sent him to you. Though he still has a somewhat scared nervous manner, it is like that of a boy who is always being bullied, but he takes his food well and is happy at home. 23rd: I was sent for in a hurry at 7.15 p.m. and found him comatose. He had struggled violently before my arrival, though not so violently as before he left home to come to you. There was some froth on his lips; no incontinence of urine or feces. I gave him didymin, one tablet bis die and caloric diet. 24th: He was apparently all right. Feb. 17th 1921: I continued him on didymin, bis die, for a fortnight (from previous date) and then once a day for the same period. He has started work. August 7th: The boy is at work and I see him about from time to time. He has been all right since my last note. He is filling out and looks a 'great deal better.'"

Comment on the Effect of the Testicular Extract.

A point of interest is the effect of the administration of the extract. The therapeutic value by oral administration of extracts of organs having internal secretions (apart from the thyroid and pituitary) has been the subject of scepticism on the part of some pharmacologists, and at best they have been regarded as having only a psychotherapeutic value as placebos. Some observers have noted useful results from the administration of the extract in infantilism. In this case a real psychotherapeutic effect appears to have been produced, especially when one notes the placebo effects of the drugs given prior to admission, and evidently the psycho-physical vicious spiral has been broken—the gain in weight alone testifies to this. The intermittency of the medication and the use of one and then two tablets was deliberate. Although the difference in dosage is small, it is noteworthy that two observers found the same thing—viz., a diminution in the intensity of the symptoms when one tablet was administered and a non-recurrence of the condition when fully under the influence of two tablets. These observations, together with the loss of muscular weakness of the right limbs and the rapid clearance of all the neurological signs are hardly the results of a mere coincidence.

TORQUAY HOSPITAL, TORQUAY.—There exists a heavy adverse halo against the Torquay Hospital, and recently a public meeting, presided over by the mayor of Torquay, it was decided to hold a public ball on Dec. 22nd for the funds of the charity. Christmas dinner collections for the same object will be made at the hotels and also in private houses. The tramways company will place collecting boxes on the cars, and a strong effort will be made to reduce the debt on the hospital. £115 have been allocated to the institution from the United Services Fund; this sum is to be invested and the interest given to the hospital.

MILK IN THE TROPICS.

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"The milk problem starts with the cradle and ends with the grave. Sometimes it leads to an untimely grave."—(The Milk Question, by M. J. ROSENBAUM.)

IN warm climates milk decomposes more rapidly than any other article of food, and as therefore every sample of it may become dangerous to health, its quality, supply, storage, and distribution are amongst the most important questions which face the physician and the sanitarian in a hot country. In some tropical lands milk holds a high place in the dietary of the people, and in India it is ubiquitously used in some form or other by all classes of the community. Even in Europe there is no subject in the whole realm of modern hygiene so complex, so involved, and so harassing as the supply of milk; and to show how deep-rooted and how important the question has become I need only call attention to the fact that it has invaded politics. The necessity for a pure and abundant milk-supply is so well realised by modern Socialists that one of the planks of the Labour Party is the "nationalisation," or at least the "municipalisation," of the milk-supply.

The milk problem in the tropics is therefore a many-sided one, and concerns not only the sanitarian and the dairyman, but the economist, the sociologist, the legislator, and the administrator. In this paper I propose to discuss briefly as regards the tropics:

- (1) The sources of milk.
- (2) The chemistry of milk.
- (3) The bacteriology of milk.
- (4) Milk as a food.
- (5) Measures of milk reform.
- (6) Substitutes for fresh milk.

The Sources of Milk in the Tropics.

The word milk in England, unless qualified in some way, means cows' milk, but in the tropics it may mean either cows' milk, buffaloes' milk, goats' milk, or even sheep's milk. The two chief sources of milk are, however, the cow and the buffalo, and in India at any rate most milk consists of a mixture of cows' and buffaloes' milk. The chief reason for the unsatisfactory condition of the dairy industry in the tropics is that, except in relation to Government dairies, no systematic attempt at scientific breeding of cattle is made.

It is surprising to find that with so many adverse factors and crude methods of breeding of milch cows a number of well-defined and pure breeds of milch cows are found. The best and purest breeds of milch cows are not peculiar to any climate or belt as in India, for instance, we find almost equally good animals in such widely different provinces as Sindh, the Punjab, the Deccan, and Kathiawar. The Indian cow is not a deep milker, and all the native breeds compare unfavourably with British cows. The largest yield of milk is not therefore obtained from any of the pure breeds, but from half-bred Indian and imported Ayrshire cows, which give from 4000 to 10,000 lb. of milk per annum. India imports a large number of British bulls, and exports milch cattle to all parts of the tropical and sub-tropical world, and this export trade is a serious drain on the national milk-supply. The best buffaloes are bred in the Punjab, the United Provinces, Sindh, and Kathiawar, but the actual yield of milk depends on other factors than the breed—viz., the kind and amount of food, the season, &c.

The sources of milk-supply in any tropical town are:

- (1) Individual milk-vendors.
- (2) Milk shops.
- (3) Dairies.

(1) The individual milk-vendor hawks milk about in uncovered brass vessels which contain various dilutions of milk and water, which he sells at different prices.

(2) The milk shop is peculiar to the native part of a tropical town. The bulk of the milk is made into sweetmeats, but it is all grossly adulterated and stored under disgusting conditions.

(3) The dairy in a typical tropical town such as Bombay or Calcutta is often not a dairy at all in the British sense of the word. The dairymen are merely importers of milk which comes in from the suburbs in

the most primitive and insanitary manner. There are no milk-trains or special milk-cans. The milkmen crowd into the ordinary third-class compartments, and their open vessels are shoved underneath the seats. The filthy condition of an Indian third-class carriage, the dirt and dust flying direct into the open milk vessels, and the disgusting habits of the passengers beggar description. The milk has already been drawn under the most insanitary conditions, and after a slow journey of three or four hours at a temperature of about 90° F., its bacterial content when it reaches the consumer easily excel that of ordinary sewage.

The Government dairies are, of course, quite a different proposition. In most of them milk is pasteurised at 170° F., rapidly cooled to nearly freezing point, and kept at a very low temperature until distributed in suitable bottles and cans, but these dairies only supply the well-to-do Europeans and a few wealthy natives. The poorer class of European and 90 per cent. of the native population have no source of supply other than those I have indicated, and the attitude of the tropical administrator on the subject is summarised in the following resolution of the Government of India issued so recently as 1914:—

"The adulteration of milk is almost universal in Indian bazaars, and a large proportion of the milk consumed is contaminated. In most cities the milk-supply is in the hands of men ignorant of the elements of sanitation and addicted to uncleanly practices. Moreover, the milk when stored and in transit to market is liable to contamination in several ways. On the other hand, the price of milk is already high and the problem of improving the purity of the supply without increasing the price to such an extent as to cause hardship to the poorer classes is a difficult one."

The question of price is a very acute one, and with our popular notions of cheap living in the tropics it is rarely realised that milk is sold at practically the same price in Bombay and London. Before the war it was actually dearer, and it is doubtful even now if milk can be obtained as cheaply in Calcutta as it can be in Liverpool.

The Chemistry of Milk.

In the year 1910 I published the result of a number of analyses of Indian milk and demonstrated that the chemical composition of milk in India differs in many respects from that in Europe or America. I pointed out then that the sanitarian and analyst practising in the tropics is constantly confronted with problems which are unknown to his colleagues in temperate latitudes, not the least of these being the absence of standards for the various food-supplies he has to analyse and report on. I examined in the Indian Divisional Laboratories at Peshawar and Cherat 326 samples of milk and found that cows' milk was uniformly up to and buffaloes' uniformly below the standard laid down for India by various writers. The averages of my analyses were as follows:—

	Cows.	Buffaloes.		Cows.	Buffaloes.
Water	85.7	85.7	Fat	3.0	6.3
Total solids	11.3	16.3	Ash	0.7	0.7
Non-fatty solids	8.3	10.0			

I paid special attention to the composition of buffaloes' milk, and the average result of my analyses of 124 samples was as follows: Specific gravity, 1031.01; total solids, 15.9; fat, 5.9; non-fatty solids, 10.0.

I have compared my results with those of other investigators and find that the chemical composition of genuine cows' milk in the tropics may be summarised as follows:—

1. Specific gravity	1027 to 1032	5. Lactose	4.03 to 4.15
2. Total solids	15.10 to 17.22	6. Ash	0.63 to 0.75
3. Fat	5.4 to 7.71	7. Water	85.90 to 87.73
4. Solids not fat	9.7 to 9.51		

The above maxima and minima of a large number of analyses carried out chiefly in India show clearly that the chemical composition of milk certified as produced under decent conditions by veterinary inspectors varies very widely under tropical conditions.

The following summary of a large number of analyses shows that the chemical composition of genuine buffaloes' milk may be stated as under:—

1. Specific gravity	1027 to 1035	5. Lactose	4.03 to 5.25
2. Total solids	13.22 to 22.09	6. Ash	0.75 to 0.85
3. Fat	5.60 to 11.6	7. Water	77.10 to 85.15
4. Solids not fat	8.22 to 11.55		

The above are the minima and maxima of a large number of analyses, and indicate what a variable product buffaloes' milk can be, as the fat varies as much as 6·6 per cent., and the total solids as much as nearly 8 per cent.

The result of my investigations showed that—

1. Cows' milk of Government dairies in India is above the standards laid down by Sale of Food and Drugs Act.

2. The analyses do not, as a rule, compare favourably with results obtained in English dairies.

3. Buffalo milk obtained from Government dairies in India is in its percentage of fat much below the standards laid down by all authorities with the exception of Richmond and Pappel, and the percentage of total solids is uniformly below amounts given in all but one of the analyses usually accepted as guides.

4. The results of analyses of buffaloes' milk in various parts of India indicate that the amount of butter-fat in buffalo milk is most in warm and moist climates such as Bengal, and least in hot or cold and dry climates such as the Punjab.

5. The results demonstrate that no general standard can be fixed for the whole of India, and that the percentage of fats in buffalo milk given by most of the authorities hitherto accepted requires reconsideration.

Goats' milk.—Goats' milk is very much used, in the tropics, and Spargo, writing in 1908, said that all things considered the neglect of the goat as a milch animal, especially as a provider of food for infants, was very much to be deplored. Rosenau supports this view, and after describing the suckling of infants direct from the goat in Switzerland, advocates its adoption as wetnurse to the human infant much more often than the cow. He does this notwithstanding the fact that he realises that although the milk of the goat is certain to be free from tubercle bacilli it may contain the *Micrococcus melitensis*. I do not think that any modern practitioner of tropical medicine will support this view, as the risk of Malta fever practically excludes the recommendation of goats' milk for use in the tropics.

Mares' and asses' milk.—Mares' milk is white and bluish in colour, and has a somewhat pronounced sweet taste, due to the fact that it has 6·6 per cent. of milk-sugar. Fats and proteins are conspicuously low—viz., 1·09 per cent. of the former and 1·89 per cent. of the latter. Asses' milk is essentially the same as mares' milk, and prior to the introduction of dried milk constituted the only safe substitute for mother's milk in Malta and some other tropical and sub-tropical places where cows' milk is difficult to obtain.

The milk of the sheep is used on the Indian Frontier by the Pathans, but its use is almost restricted to the trans-border tribes, so that this variety of milk cannot be seriously regarded as a source of the milch-supply of the tropics.

The Bacteriology of Milk.

The opacity of milk covers a multitude of sins. Even in Europe and America almost all the milk found on the market is more or less dirty. Most of the dirt is actual cow-dung, but a great deal comes from dust, the hands of the milkster, and from the pails. Bacteria cling to dirt in all its forms, and it has been demonstrated that about one-half the weight of cow-manure consists of bacteria. Dirt is the chief source of bacteria in milk, and it is these bacteria which favour decomposition and hasten souring. Various investigations reveal from 1 to 183 mg. of dirt per litre in milk. Rosenau points out that milligrammes mean but little to the average mind, and even to the chemist they represent tiny amounts. If we transcribe these figures into ordinary language we shall find a surprising interpellation. Thus, Commissioner Evans estimated that Chicago receives 25 tons of dirt in its city milk-supply every year. I shall refer to this point again in the next section.

Chemical analyses of milk are useful as they enable us to say if a sample of milk is genuine or otherwise, but they do not reveal anything as to contamination with dirt or microbes. A milk may pass all chemical standards and still be not only dirty but actually infected with pathogenic organisms. Most observers are satisfied that milk as it leaves the udder of the healthy cow is sterile, but some writers dispute even this and find bacteria in milk, even in the udder itself. Be this as it may, the opportunities for contamination are manifold and may be enumerated as follows.

A. During milking.—(1) Dirty udders and flanks of cow; (2) dirty hands, clothing, and habits of milkster; (3) dirty stables and receptacles; (4) dirty water.

B. During transit and distribution.—(1) Dust; (2) adulteration with foul water; (3) dirty milk-shops; (4) frequent handling; (5) filthy customs of milk-hawkers; (6) the house-fly.

Since my own experiments in Peshawar and Chert a large number of bacteriological examinations of milk have been carried out by investigators in the tropics of recent years, especially by Dr. L. L. Joshi, of Bombay. The routine procedure adopted has been: (1) Microscopical examination of centrifuged sediment; (2) enumeration of number of microbes per cubic centimetre; (3) test for lactose fermenters in different dilutions; (4) examination for *B. coli communis* and *B. enteritidis sporogenes*.

To get some idea of the bacterial counts found in India the figures should be compared with those of sewage in England and America:—

Sewage.		Milk (240 samples).	
	Micro-organisms per c.cm.		Micro-organisms per c.cm.
England ...	2 to 11 millions	England (summer) ...	25 to 30 millions
Boston ...	2,800,000	India (winter) ...	4 to 5 "
		India ...	35 "

It will be seen that both in England and India the bacterial content of milk is often greater than that of sewage!

The microscopical examination of centrifuged sediment is of value as it gives general information as to the source of dirt in a sample of milk; a practised bacteriologist can distinguish the types of bacteria characteristic of stable-dung, cow-manure, &c.

Lactose fermenters and *B. coli*.—The kind of bacteria found in milk is even more important than the mere enumeration of the total number of bacteria. The presence of *B. coli* in about 94 per cent. of Bombay milk and the detection of lactose fermenters in a dilution of one in a million of milk clearly shows that the Bombay milk is grossly contaminated with manure and other dirt. Most organisms multiply rapidly in milk unless it is kept cool. Bearing in mind the various insanitary conditions under which milk is collected and distributed in the tropics the presence of organisms of the coli group in large numbers indicate gross pollution. The spores of *Bacillus enteritidis sporogenes* are found in large numbers in cow-dung, and as the organism does not multiply in milk Savage considers that estimations of this spore-bearing organism are of special value, as they yield an indication of the amount of original pollution.

Very little work on the organism in relation to milk has been done in the tropics, and it does not appear to be a common frequenter of tropical milk, as Dr. Joshi only found it in 29 out of 240 specimens in Bombay. Generally speaking, no bacterial standards for milk have been fixed in the tropics, but Dr. Joshi, in the light of his extensive experience as municipal analyst for Bombay, suggests the following.

1. *Microbes per cubic centimetre.*—The total number of microbes should not exceed 2 millions from November till March and 5 millions from April till October.

2. *Lactose fermenters.*—These should be absent from 1 c.cm. of the sample.

3. *Centrifuged sediment.*—Leucocytes and cocci, a few only; streptococci and pus cells, absent.

4. *Pathogenic organisms.*—Nil.

I cannot support the first two of these standards, as the first is too low and the second far too high.

The standards laid down by the Ministry of Health and being worked on by county laboratories in this country for certified milk are as follows: (1) micro-organisms per cubic centimetre, 30,000; (2) organisms of the coli group—i.e. lactose fermenters—absent from 0·1 (one-tenth) of a cubic centimetre.

Dr. C. Ponder, assistant county medical officer and bacteriologist for Kent, assures me that *B. coli* organisms are always to be found in 1 c.cm. of milk, even from the best farms. I am inclined to think that tropical milk to be even reasonably clean should not show more than 500,000 micro-organisms per c.cm. at any time of the year, and that no organisms of the coli group should be present in a tenth of a cubic centimetre.

I entirely agree with standards 3 and 4—viz., that the centrifuged sediment of all milk should be free from streptococci pus cells and pathogenic organisms.

Tuberculosis is very common in India, and has been described as the most serious cause of mortality in that country, but, strange to say, it seems to be established beyond doubt that it is not spread by milk. Dr. A. Lankester, who was specially deputed by the Indian Government to carry out an inquiry as to the causes of tuberculous disease, gives it as his opinion that the disease has been found only in cows, and that not a single case has been found in buffaloes. He affirms that tuberculosis in man has never been directly traced to cattle in India, and the T.B. (*tubercle bacillus*) has never been detected in Indian milk. Dr. L. L. Joshi, from his extensive investigations into Bombay milk, supports this opinion, and although acid-fast bacilli have constantly been found the infected milk has invariably failed to produce tuberculosis in animal experiments.

Milk as a Food for Infants in the Tropics.

It is a well-known fact that in all tropical countries the mortality among children under one year is extremely high as compared with that in temperate climates. About one-fifth of all Indian infants die within the first year of birth, whilst in the great Indian cities the mortality rate is even higher, and an average of ten years prior to the war gave 445 per 1000 for Bombay, 381 for Delhi, and 297 for Madras.

I am unable to find any reliable statistics regarding the proportion of deaths among breast-fed and hand-fed infants in the tropics generally, but Dr. Joshi, as the result of inquiries made in Bombay, states that "the mortality among artificially-fed children is much higher than among the breast-fed." The proportion of native children who are fed with cows' milk is very small, and one might search through an Indian village of considerable size without finding a single one, but it is different with European quarters of the great towns and the military and civil cantonments. Here hand-feeding is the rule, as there is a very widespread notion that nursing is bad for both the European mother and her child in the tropics. The strain of suckling is thought to be too much for the mother, and the popular idea is that the mother's milk is too weak and likely to be insufficient for her offspring. Nothing could be more erroneous than this idea, and, as a matter of fact, human milk is richer in fat in the tropics than in temperate climates. On the other hand, cows' milk is poorer in fat than in Europe, and this is one of the many potent arguments against the use of cows' milk in infant feeding in warm climates. It was on account of its poverty of fat and its wealth of dirt and bacteria that I gladly abandoned its use in the hand-rearing of children whose mothers had honestly failed in their attempt to suckle.

Milk Reform Measures.

The measures necessary to reform the milk-supply of the tropics fall naturally under four headings—viz., (a) economic; (b) educational; (c) sanitary; (d) legislative.

(a) *Economic measures of milk reform.*—A book might be written on this subject alone, but the whole may be summarised as measures to improve the breeding, feeding, housing, and tending of milch cattle. The essential difference between breeding of cattle in the tropics and at home is that, whereas cattle are bred for food in Europe and America, beef is little used by the natives of hot countries, and therefore the aim of breeding in the tropics is the production of a class of animal the female of which is a good milker whilst the male is an efficient draught animal. In India the cow is a sacred animal, and it is therefore hung round with ornaments and usually well fed, according to native ideas and ideals, but the Indian peasant is ignorant of the most elementary notions of hygiene as applied to cattle-rearing. He is himself as poor as a sparrow, but his home lacks the comfort and security of the sparrow's nest. It is little wonder that he houses even sacred animals under conditions which offend every sanitary principle, and his ideas of feeding and tending would horrify the Western dairyman. Calves are often allowed to die through sheer neglect, although the

slaughtering of one of these animals for food might be quite sufficient to raise a religious riot.

(b) *Educational.*—Kosennau says, "education is one of the principal spokes in the wheel of the milk wagon." The production of clean and wholesome milk is largely a question of cost and education. The public must learn to appreciate the fact that clean and pure milk cannot be procured cheaply, and they must be willing to pay a reasonable price for it. Dairy-farming has a much more comprehensive meaning in the tropics than in Europe, and every colony in the British Empire has a dairy branch in its Agricultural Department. In 1915 an Indian Branch of the Dairy Education Association was started at Poona, and the subject of scientific training in dairying is now just beginning to receive something of the attention it deserves in our Indian Empire. It is obvious that years must elapse, however, before any propaganda can make itself felt amongst 300 millions of people of whom only an almost negligible fraction can read or write. The only hope is that dairy reform may be adopted by some great personage anxious to associate her name with a new Indian reform, and then improvement of cattle-breeding and dairying may become as fashionable as schemes for maternity and child welfare are at present. The great difficulty in the way is the poverty to which I have already referred, but the Oriental is a very intelligent man, and even the peasantry quickly adapt themselves to Western advantages, and have taken most kindly and promptly to all modern advantages of transport and communication, such as railways, tramways, motor-cars, the post-offices, and the telegraph.

(c) *Sanitary measures.*—These include:—

(1) *Measures for the care, management, and housing of milch cattle.*—The quality of cows' milk largely depends on the food supplied to the animals. Even cows from our fine English meadows deteriorate rapidly when transferred to the tropics, where "the grass-cutter" finds the green food, and where dry food consists of straw or hay rapidly ripened, dried to a cinder under a hot sun, and entirely lacking in the "sappiness" so essential to milch cows. The native cow is turned out to find its living on burnt and bare patches. Milk analysis, as I have indicated above, has reached as near perfection as possible, yet the essential "goodness" of a milk is beyond the chemist to state. Milk is like no other element of food except raw eggs. It is the only product of a living animal used as food by man. All other articles of food are taken from the animal after it has been killed. Milk being an animal secretion therefore varies with the breed, food, health, water-supply, and even the temper of the animal. It is this "living" factor, combined with the idiosyncrasy of the individual, which makes all the difference. Milk secreted in the enervating climate of the tropics must be an entirely different product from milk produced in England or in a "white man's country," such as New Zealand. The average European merchant or better-class official in the tropics keeps his own cow, and I have often been consulted by an anxious mother who was quite unable to understand why the milk disagreed or her children were not thriving. "We have our own cow," she would say, "so our milk must be all right." She had failed to realise that the mammary secretion of an animal living under the enervating tropical skies must be essentially very different from that of English cows fed on rich English pastures. The difference is very striking even between the milk of Indian and imported cattle, and a Burman child which was going from bad to worse whilst fed on native cows' milk commenced to thrive at once when put on the milk of an imported Australian cow. The quality of milk varies with the breed of the herd producing it. Even in the Argentine, which is the most favoured place outside England for raising cattle, the Argentine farmers have to import fresh blood from England at frequent intervals. Long experience has shown that the difficulty of rearing cattle in the same perfection in the tropics as at home cannot be overcome.

The quality of food and the climate of the British Isles enhances the quality of cattle reared within its shores to an extent recognised everywhere, as Sir James Cantlie has pointed out. The procedure now adopted by the Ministry of Health for securing "Certified Milk" in England is very elaborate, and the report card introduced by the Ministry for carrying out inspections should be of interest to sanitarians in the tropics.

(2) *Measures to secure clean milking.*—Milking may be compared to a surgical operation as far as antiseptic methods are concerned; the principles and the methods involved in

1 Difficulties of Milk-supply in the Tropics. *Journal of Tropical Medicine and Hygiene*, April 1st, 1913, p. 165.

obtaining clean milk are therefore practically the same as those employed in performing a surgical operation. Scrupulous attention must be paid to minute details, and the utmost cleanliness must be observed with regard to (a) the place of milking; (b) the animals; (c) the person and clothing of the milker; (d) the milk utensils.

3. *Measures to be taken by the consumer.*—The average consumer of milk in the tropics is almost as careless with regard to the storage of milk in the household as the producer is criminally negligent in its collection and distribution. Among the well-to-do class the care of milk is more often than not left to ignorant and dishonest servants. The first duty of the consumer of milk is to see that a responsible member of the household personally attends to all details with regard to the transit of milk from the dairy to the bungalow and to its treatment and storage after receipt. Generally speaking, the best domestic method for the treatment of milk is boiling. Dr. Janet Lane-Claydon has rendered a great service to the milk consumer in the tropics by proving that milk does not materially suffer by heating; boiled milk is not inferior to raw milk as regards its digestibility and keeping qualities. Having been boiled the milk must be carefully stored, as it is useless to sterilise the milk by heat and then permit reinfection by means of dust and flies.

4. *Artificial purification.*—Pasteurisation has been used very extensively in Government dairies in the tropics, and Joshi speaks favourably of ultra-violet rays, but I do not know of any tropical installation of "light purification" of milk. These methods, however, procure purified as distinguished from pure milk. No method of treatment can atone for the filth with which the milk of all tropical cities is contaminated. The main factors responsible for a rapid multiplication of bacteria in milk are: (1) initial contamination, (2) time, (3) temperature; and under the conditions described above: (1) initial contamination is wellnigh inevitable whilst conditions of life in the tropics obviously give the necessary, (2) time, and (3) temperature, to produce large growths of micro-organisms of almost every variety.

Substitutes for Fresh Milk.

Pure milk, produced under the best conditions and kept clean until its consumption, is the ideal to be aimed at in the tropics, but in view of the foregoing, it seems to be wellnigh unattainable at present. It is little wonder, therefore, that the physician and sanitarian have turned with relief from the filthy white sewage nicknamed "milk," to the attractive sterile milk powders which have recently been placed on the market in commercial quantities. My attention was specially drawn to these products when I was in charge of the district laboratories at Peshawar and Cherat, and I carried out during 1910 a series of analyses and experiments on behalf of the Government of India. My report strongly advocated the adoption of dried milk for military purposes, and I formed such a favourable impression of the product that I used it extensively for private purposes, and largely advocated its adoption as a substitute for cows' milk in infant feeding.

Some ten processes for the manufacture of dried milk have been described, but so far as I can ascertain, all the products at present on the market are prepared by one of two processes—viz.: (a) the rapid drying of fresh milk on rollers heated by water or steam, and the subsequent powdering of the milk solids thus obtained with or without the mixture of lactose; or (b) the projection of milk in the form of a very fine spray into a chamber with a current of very hot dry air so that the milk solids fall on the floor of the chamber in the form of fine powder.

The product, which is sold under a variety of proprietary names and known generally as "dried milk," varies in colour from a very pale yellow to a dead white. Powders made on rollers are slightly granular, whereas those made by drying fine milk spray in hot air are free from any granular appearance or feel. When freshly prepared, milk powder has a characteristic sweet odour, but some of the full cream varieties tend to develop a sour "fallow" smell if not kept in hermetically sealed tins.

All physicians and nurses are familiar with the firm tough curd of cows' milk. Porcher and Cajal state that dried milk, when made up with water, coagulates "just like human milk," and, without going quite as far as that, I can say that several brands of dried milk which I have examined, have, in my experience, produced a curd which was flocculent and finely divided. It was this quality, which I elicited in the laboratory

experiments above referred to, which first attracted my attention to the value of dried milk as a food for infants.

The keeping power of dried milk was discussed when I read my paper on the subject at the Congress of the Royal Sanitary Institute at Birmingham last July, and all speakers were agreed that it does not depend on the way it is packed. Truby King rightly insists that all dried milk intended for infants' food in the tropics must be packed in hermetically sealed tins, and Jensen states that if packed in this way it will keep quite as well as condensed milk, but the various medical officers of health who spoke in support of my paper stated that in temperate climates it will keep quite well if simply stored in a dry place.

During the war supplies of all imported articles became scarce in India, and some of the stocks of dried milk were a long time on hand. A friend tells me that she used in the feeding of her infant in the Himalayas in 1917 tins of dried milk which must have been imported in 1915 or earlier. Her three-year-old daughter is a living evidence of the excellent keeping qualities in the tropics of the brand of dried milk used.

Effects of Drying on Milk.

The following is a brief summary of the effects of dried milk manufacture on the constituents of milk:—

1. *Fats.*—Fats are no longer in emulsion, but in a condition resembling butter and quite granular. When mixed with water the fat globules are considerably fewer and much larger.

2. *Proteins.*—Albumin and globulin are coagulated, but caseinogen is not coagulated. All observers are agreed that the protein content is more digestible in dried than in fresh milk.

3. *Lactose.*—The milk-sugar is unchanged.

4. *Ferments.*—These are all destroyed, but Lane-Claydon has shown that this loss is of no importance as regards the value of dried milk for hand-feeding of infants.

5. *Vitamines.*—Until Professor W. D. Halliburton found that some vitamins will stand high temperatures it was generally thought that the milk vitamins were destroyed by the heat used in the process of manufacture. Funk, however, demonstrated the presence of vitamins in dried milk and showed that there is sufficient of the antiscorbutic substance in boiled milk to supply the needs of infants, although some is destroyed by heating. Leonard Hill goes further and states that the antiscorbutic food-necessary is not destroyed in boiled milk. Confusion seems to have arisen over failure to differentiate the three accessory substances all grouped together as "vitamines"—viz.: (1) fat-soluble A; (2) water-soluble B; (3) water-soluble C.

1. Fat-soluble A is the antirachitic factor, and it is present in all animal fats, but absent from most vegetable oils. It is not affected by heat and is therefore present in dried milk.

2. Water-soluble B is the antineuritic factor. It stands denaturation and is therefore present in dried milk.

3. Water-soluble C is the antiscorbutic factor, and here we come to the crux of the question. Experiments at the Lister Institute show that the antiscorbutic quality which is poor even in fresh cows' milk is largely diminished in the preparation of dried milk, whereas the results of American investigators, Hess, Fish, Unger, and others, demonstrate that there is no diminution of this factor and that they have actually cured cases of scurvy by the use of dried milk. In the discussion on my paper at the Birmingham Congress of the Royal Sanitary Institute all speakers agreed with the American results, and not one had ever seen a case of scurvy in a child fed on dried milk.

Chemical Composition of Dried Milk.

Sir James Dobbie analysed 26 samples of full-cream milk in the Government laboratory with these results:—Water, 1.8 to 6.10. Fat, 22.58 to 31.28. Protein, 22.27 to 27.75. Lactose, 33.26 to 41.39. Ash, 5.44 to 7.58.

A large number of samples of dried milk have been examined at the Lister Institute of Preventive Medicine, with the result that in no case could the tubercle bacillus be found. I have conducted a series of experiments with Dr. C. Samut at Chatham; the result of my series of experiments was that no spore-bearing organisms were found, and that although the samples were not actually sterile, only organisms like the hay bacillus were found, and pathogenic and sewage organisms were always absent. Dr. F. J. H. Coates thinks that most of the organisms found in samples of dried milk have been reintroduced in the concluding stages of manufacturing processes, frequently between the powdering and the packing of the dry product.

Dried milk has steadily increased in popularity as a food for infants, and has won the warm approval of many eminent French and British authorities. The product has been employed on a large scale in Leicester, Sheffield, Manchester, Bradford, Liverpool, Birmingham, Birkenhead, Huddersfield, and several London boroughs, and its introduction has led to the abandonment of infant milk depots, and in the distribution of dried milk in lieu of them.

The position of dried milk as an infants' food may be summarised as follows:—

1. *Comparability with fresh milk.*—Some authorities, including numerous French and Belgian doctors, regard it as "un véritable aliment de choix," and consider it superior to sterilised cows' milk or even humanised cows' milk as supplied at infant milk depots; others regard it as a temporary diet to be given for a short time when other foods disagree. Dr. Coult's view is that in some cases increased experience has led to greater confidence in its utility as a continuous diet when breast-feeding is impossible.

2. *Nutritional value.*—The French writers consider dried milk a safer diet than "town milk" and of equal nutritional value. They regard it as specially suitable to supplement breast-feeding.

3. *Digestibility.*—All investigators have found it better tolerated than other foods in digestive troubles.

Suitability for warm climates.—The French authorities and most municipal infant-welfare centres have found dried milk of special value in warm weather. All authorities have agreed that the product is especially adapted for tropical use, but the literature is scanty. Harston, of Hong-Kong, has emphasised the advantages of dried milk over condensed milk. My own experience in India and during a visit to Ceylon showed that it was admirably adapted for the feeding of the youngest infant in the tropics.

Use in pathological conditions.—In my experience dried milk has been of special value in infants who have been doing badly on other milk preparations. I have used it with success in several cases of persistent vomiting, and have seen rickety children steadily improve on dried milk diet.

As an adult and invalids' food.—Dried milk has a great field of usefulness as a food for adults and invalids. Its use appears to be indicated in the following conditions:—

(1) *Gout:* The absence of purin bodies renders milk in this digestible form the best form of protein in this disease. (2) *Renal disease:* The product is manifestly a compact form of giving a suitable food in a disease where bulk is frequently a matter of great consideration. (3) *Sprue and chronic dysentery:* I have seen this form of milk extremely well tolerated in cases in which ordinary cows' milk was badly borne. I have prescribed it recently with the utmost success among the pensioners attending a tropical diseases clinic of the Ministry of Pensions. (4) *Tuberculosis:* Dried milk is a cheap and efficient way of giving the milk which is so necessary in tuberculous conditions. (5) *Chronic indigestion and diarrhoea:* The chief reasons for the suitability of milk powders in these conditions are: (a) the fine clot and the fact that (b) it can be digested in strong concentration. The chief objections of ordinary milk—viz., its bulkiness and its hard curd—are thus surmounted. (6) *Lactation:* Dried milk is an ideal food for the nursing mother and has been largely advocated and extensively employed as such by various schools for mothers. (7) *Typhoid fever:* During the discussion of my paper at the Royal Sanitary Institute Congress above referred to, the medical officer of health of St. Helens spoke very highly of the value of dried milk in typhoid fever.

In dried milk we have a valuable food which has a wide sphere of usefulness, not only in the feeding of infants and invalids, but in domestic and commercial cookery. For use in the tropics and in places such as Malta, where cows' milk is unobtainable and goats' milk dangerous, it has a large range of application, and on long voyages it presents many advantages over condensed milk.

Dried milk, produced and dried under the almost ideal conditions attained by some manufacturers from milk fed on rich English or Colonial pastures, possesses the essential "goodness" on which Sir James Cantlie rightly insists in the article to which I have referred above. From long and varied experience of its use in war and peace I am inclined to think that milk powder presents the only solution at present available of the manifold problems indicated above as associated with "milk in the tropics."

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Medical Societies.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

A MEETING of this section was held on Nov. 12th, when Dr. HASTINGS TWEDDY, the President, delivered his inaugural address for the session on

Recent Progress in Obstetrics.

The President said it was 14 years since he last occupied that position, and on that occasion he dealt with gynecological progress, and he then mentioned his plan of skin preparation by painting with a spirit solution of picric acid. The fact that this had now received wide adoption was eloquent testimony to the influence exercised by this section on medical thought. He proceeded to review recent progress in obstetrics, which had advanced at a more rapid rate than its kindred art. In 1904, the year in which he became Master of the Rotunda Hospital, the principles of asepsis were as well understood as to-day. Yet by a series of changes he was able to make the practice of asepsis more perfect and to lower the septic mortality by 50 per cent. and the morbidity from 10 per cent. to 4 per cent. These changes had all appeared in the hospital reports.

Accidental hemorrhage.—The discovery that hemorrhage might be poured into the abdomen rather than into the uterus, and the further observation that it might arise as a symptom of toxæmia, were findings of the first importance. The condition, when treated by the Dublin method, was now no longer a serious menace. Out of 18,000 bed patients, he had recorded 72 such hemorrhages with two deaths. These would have been saved by Cæsarean section had his knowledge then been as complete as now. Evidence in favour of the vaginal plug was conclusive, yet few realised the manner in which it acted, or had acquainted themselves with its proper application.

Eclampsia.—The Dublin treatment of eclampsia had reduced the mortality to below 5 per cent. In his last series of 51 convulsive eclampsics he had but one death (cerebral hemorrhage). Such success was only possible when treatment was carried out as a routine procedure in every case. There was no longer room for the suggestion that each case of eclampsia should be treated on its merits, for so long as one patient was bled and another received saline solution, another barley-water, whey, or glucose, whilst yet another had alkaline infusion withheld because of the presence of polyuria, mortality must remain high. The starvation treatment had proved even more effective in the prevention than in the cure of eclampsia. A few weeks ago he saw a lady on the verge of convulsions, yet after six days of absolute starvation the severe symptoms had almost passed. He then permitted ½ lb. of grapes to be eaten; a severe relapse ensued, necessitating a rapid emptying of the uterus. All Dublin obstetricians, he said, were now agreed as to the harmfulness of food. Starvation would also cure the other toxæmias, hyperemesis, pregnancy vomiting, salivation, and probably acute yellow atrophy if adopted in time.

Contracted pelvis.—The treatment of contracted pelvis had gained by the introduction of pubiotomy and lower segment Cæsarean section, as practised by Professor Munro Kerr. Those who could accurately measure the internal diameters now found that each diminution of half an inch in the conjugate of a flattened pelvis gave its own indication for treatment. For the first half-inch, normal delivery, with forceps or version according to complication; second half-inch, induction of premature labour or pubiotomy; third half-inch, lower-segment section or induction of premature labour and pubiotomy; fourth half-inch and all below it, lower-segment Cæsarean section. Classical Cæsarean section would in future be reserved for emergencies when speed was an important element. It was a dangerous operation, both in immediate and after results. It was at present performed much too frequently, and often cloaked an imperfect obstetrical knowledge.

Ruptured uterus.—Statistics showed that better results were obtained by plugging the rent with iodoform gauze, bunched in the manner of a housemaid's duster, than by abdominal section.

Septic mortality.—This had diminished since the introduction of autogenous vaccines, polyvalent serum, and the continuous rectal drip.

Mycorrhectomy.—When performed during the pregnant state, this had proved less harmful than the older hysterectomy.

A great change for the better had occurred in private practice. Three influences had combined to bring this about: (1) The popularity of the nursing home; (2) the introduction of scopolamine; and (3) the use of pituitary extract.

Patients now had a more uneventful convalescence in the home than in a private house. The reason was obvious. In the latter jugs, basins, beds, &c., were rarely aseptic; help was inefficient and not always wise; the couch was unsuitable, the light indifferent, and surgical instruments hard to preserve aseptically. In the nursing home all these disadvantages were reversed. It had further become possible to determine the date of labour with a certain amount of accuracy. Many women carried their infants over-time, an obvious disadvantage, and we could now in 50 per cent. of cases stimulate a full-term labour by a dose of castor oil given in the early morning, followed in an hour's time by 10 gr. of quinine, and again followed in two hours' time by $\frac{1}{2}$ c.cm. of pituitrin. If this failed no harm was done, and they should not again be tried for a full week. After failure the doctor may count on three or four days' respite from the fear that labour will start. When in the home, if the patient falls into labour during the night-time, she is given a hypodermic of $\frac{1}{2}$ gr. of morphia, and encouraged to rest quietly or sleep. At breakfast-time he (Dr. Tweedy) hears by telephone the details of the case. He makes an early call, and administers $\frac{1}{2}$ gr. of scopolamine without morphia, if the patient is still in the first stage. He may also deem it advisable to give $\frac{1}{2}$ c.cm. of pituitrin. These drugs are so divided as to make the first dose of the former $\frac{1}{2}$ gr., and of the latter $\frac{1}{2}$ c.cm. If in 20 minutes symptoms of their action are not marked the remaining quantities may be given. He seldom sees his patient again until called on to deliver. If he is not summoned he visits in the evening, and, if necessary, repeats the pituitrin. Labour is almost always completed before the night, either naturally or by forceps. The use of forceps is a troublesome, anxious, and far from safe operation when carried out in a private house. On the other hand, there is no objection to be urged against its use when surroundings are aseptic, light good, help ample, and all other conditions favourable.

He hoped that many new Fellows would join the Royal Academy of Medicine in Ireland during the session, for it was only through this channel that the Dublin School could be made articulate.

Discussion.

Sir JOHN W. MOORE (President of the Academy of Medicine) was much interested in Dr. Tweedy's paper from a physician's point of view, and said that much of his prejudice against nursing homes had been overcome.

Sir WILLIAM SMYLY corroborated Dr. Tweedy's introduction of picric acid preparation of the skin for operation. He agreed that accidental hemorrhage was the same as eclampsia. He was convinced of the efficacy of starvation in toxicæmic cases. He was not so convinced about lower-segment Cesarean section.

Dr. G. FITZGERON (Master of the Rotunda) endorsed most of what Dr. Tweedy had said, but objected to his fixed method of treating the various degrees of contracted pelvis. He did not agree with Dr. Tweedy in giving pituitary extract during the first stage. He was still in favour of classical Cesarean section, and considered that lower-segment section was only advisable in cases like toxæmia, where one must take subsequent pregnancies into account. He did not find intestinal adhesions in the abdomens opened this year where former classical sections had been performed.

Dr. D. G. MADILL said that successful as was the Dublin method of treating the toxæmias, since we were yet ignorant of the source and nature of the poison, our treatment cannot be described as ideal. He also disagreed with Dr. Tweedy in giving pituitary extract during the first stage, as some years ago he had seen a nasty accident from its use at this time. He regretted the absence from Dublin of a well-endowed obstetrical pathological laboratory where we could compete in research on equal terms with continental investigators.

Dr. SPENCER SHELL asked why the patient suffered a relapse after eating $\frac{1}{2}$ lb. of grapes. He was not in complete agreement with Dr. Tweedy regarding the relative advantages of a nursing home. He asked on what evidence Dr. Tweedy concluded that the patient was at term. He had tried the castor-oil and quinine method, but had never succeeded in inducing labour.

Dr. R. E. TOTTENHAM agreed with Dr. Madill that there was no satisfactory method of obstetrical narcosis so far discovered.

Sir ANDREW HORNE thought it ought to be emphasised that Dr. Tweedy was the originator of the picric acid method of skin preparation. He made it a rule to examine every patient vaginally within the last fortnight of pregnancy. He was an advocate of the classical operation in preference to lower-segment Cesarean section.

In the course of his reply the PRESIDENT said that pituitrin must be given in small doses if administered during the first stage.

Exhibition of Specimens.

Specimens were shown by the Master of the Rotunda: (1) Two Uteri removed for Chorion-epithelioma; (2) Anomalous Products of Conception; and remarks were made by Professor A. C. O'SULLIVAN, Sir WILLIAM SMYLY, Sir ANDREW HORNE, Dr. MADILL, and the PRESIDENT.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

Trypanosomiasis Research: Resumed Discussion.

THE discussion on Professor Warrington Yorke's paper on the Present Position of Trypanosomiasis Research, adjourned from Oct. 16th, was resumed on Nov. 15th, with Professor W. J. R. SIMPSON, the President, in the chair.

Sir JOHN ROSE BRADFORD, as a member of Lord Desart's Departmental Committee, dealt with Professor Yorke's criticism of the report from a general point of view, and considered that the latter's plea in favour of the Royal Society of Tropical Medicine being consulted by the Government was beside the mark. The Government had consulted, not the Glossina Subcommittee, a body chiefly composed of entomologists, but the Departmental Committee, a widely representative gathering embracing sportsmen, naturalists, pathologists, entomologists, and army medical officers of administrative ability. He therefore maintained that the complaint that the British Government had not exercised their consultative powers as advisedly as the French was not justified. Exhaustive evidence on very complex subjects bearing on the relationship of game to trypanosomiasis, and on the question of game destruction was taken. The committee had reported that a game destruction experiment, though perhaps desirable, was a matter of extreme difficulty, and had recommended the close prosecution of entomological inquiry. This he felt to be of the highest importance.

Dr. S. A. NEAVE at the outset confessed himself quite at variance with Professor Yorke's criticism, but claimed that the society was deeply indebted to him for his introduction of so important a discussion. He pointed out that the report of the Glossina Subcommittee had never been published, but had been discussed more or less privately, and that Professor Yorke's unfavourable conclusions were based on a misconception of the relative functions of the subcommittee, a purely entomological body, and of the Desart Committee. He advocated that the lines of inquiry in trypanosomiasis should be concentrated on the blood parasite, the insect vector, and the animal host, and regarded the chances of success to be greater in destroying the fly than the vertebrate host. Dr. B. Blacklock's criticism, he said, aimed at the widespread extermination of game; the opponents of this scheme objected to so experimental and drastic a measure on the ground of the uncertainty of its results and the very difficult conditions it imposed. The difficulty of control in a given area both before and after the experiment was considerable, and the measure was one of doubtful value compared with a direct attack on the fly. There was much yet to be known about the habits of tsetse-flies and the nature of their dependence on game. The favoured objective of *G. morsitans* and *palpalis* might prove to be the bush beast, an animal very hard to kill. He was strongly of

opinion that the only method of exterminating the tsetse at present available was by a wholesale occupation of tracts of country by man, which would result in the driving back of the vertebrate hosts of the trypanosome. Such occupation should be preceded by attacks directed both against the flies by the introduction of hostile parasites and against their breeding places.

Dr. R. T. LEIPER discussed the question from the point of view of organisation of research into the various problems of trypanosomiasis and the necessary administrative measures called for.

Lieutenant-Colonel D. HARVEY, R.A.M.C., emphasised the services which Professor Yorke had rendered in bringing forward so important a subject for discussion, and the injustice to which Professor Yorke had been exposed by certain adverse remarks of some of the speakers at the preceding meeting. He made reference to his own past experiences when working on sleeping sickness in Nyasaland and his association there with Dr. Taute. The latter, he said, was convinced of the definite distinction between human and game trypanosomiasis, and had submitted to inoculation with the game trypanosome through the bite of an infected *G. morsitans* and by injection of the blood of an infected dog without contracting the disease. The speaker considered that experiments with the human and game trypanosomes had not proved that they were alike pathogenic to both man and beast, or that the identity of *T. rhodesiense* in man with *T. brucei* in game was yet established, for hitherto the latter had not been found to be pathogenic to man. He did not regard man as likely to become immune to trypanosome infection or that there was any evidence of gradation in severity of the disease.

Dr. ANDREW BALFOUR drew attention to the important question of immunity in trypanosomiasis and the possibility that if man was the original host of *T. gambiense* he might have acquired immunity in the regions where the disease had long been prevalent. In Nyasaland trypanosomiasis was not an old disease, but a comparatively recent importation; *T. gambiense* having been carried from West to East, following on Stanley's expedition to Uganda, and there spread among a non-immune population.—Dr. C. M. WENYON and Dr. H. S. STANNUS also took part in the discussion.

Reply to the Discussion.

Professor YORKE, in his reply to the points raised at the previous meeting, observed that Dr. Guy Marshall, Major E. E. Austen, and Dr. A. G. Bagshawe had objected to his criticising at all the report of the Glossina Subcommittee on the ground of that report being a private document. He had been invited to attend a meeting of entomologists in June last, when the report was discussed, and he then briefly criticised it. It was from that moment public property, in print, and issued to raise public funds for trypanosomiasis work, therefore open to criticism, and justifiably so. He had been consulted about the report by Dr. Aylmer May, P.M.O. of Northern Rhodesia, whose views coincided with his own. With regard to the points raised by Dr. Marshall, Professor Yorke considered trypanosomiasis to be not purely an entomological problem, but one of a disease which, affecting both man and domestic stock, concerned medical and veterinary as well as entomological science. Granted the elimination of carriers of trypanosomiasis, one of the points requiring investigation would be its effect on the tsetse-fly. According to Dr. Marshall, the destruction of shelter for the flies was only necessary in focal areas, but this he maintained to be absolutely fallacious and impossible. Professor Yorke regarded Major Austen's criticisms as misinterpreting Dr. May's report on the number of blood examinations which had been made in Upper Rhodesia and the relation to the population of the percentage found to be infected with trypanosomiasis. The case quoted, which had shown the presence of trypanosomes for years without other symptoms of disease, was not intended as evidence that it was the sole instance of such a condition, but rather as representative of others which were possibly acting as reservoirs of infection comparable to a similar danger existing in the antelope. He held that if the work of Sir David

Bruce, Dr. Kinghorn, and himself was correct it was computed that 1 in every 500 tsetse-flies harboured the human trypanosome, and confessed that the proportion 1 in 100 attributed to his calculation was an overstatement made at a disadvantage in his evidence before the committee. Dr. Bagshawe had sheltered himself chiefly behind Dr. Marshall's criticism, but had put forward one relevant observation—namely, that among the British and German troops in the East African campaign no case of human trypanosomiasis had been encountered north of 9°S., although tsetse flies abounded and animals had succumbed to trypanosome infection in the area of operations north of that line. Such limitation of human and animal trypanosomiasis to particular zones called for further verification and investigation. The question of immunity raised by Dr. Balfour was one of great interest and importance, but too problematical to be discussed in a few words and in the present state of our knowledge. Professor Yorke summarised his views on the position of trypanosomiasis by emphasising that the problem to be considered was not a purely entomological one, but both epidemiological and medical, demanding further lines of research into the relations of the parasites to man and game respectively, and he was strongly of opinion that the organisation proposed by the Glossina Subcommittee was quite inadequate to prove of service in dealing with the many points at issue.

ULSTER MEDICAL SOCIETY.

THE opening meeting of the session was held on Oct. 28th, when Dr. THOMAS HOUSTON, the President, delivered an address on

The Behaviour of the Leucocytes in Infection and Immunity.

After referring to the losses by death which the society had sustained in the course of the year, and paying a tribute to the memory of Sir Alexander Dempsey, Sir John Byers, Mr. Robert Campbell, Dr. F. C. Smyth, Dr. Hicks, and Dr. Steede, the President dealt with Ehrlich's classical work on the origin and differentiation of the white cells of the blood, and emphasised the importance of the leucocytes in diagnosis and prognosis. The Arneth count was a further differentiation of the polymorphonuclear cells, according to the form of their nuclei, and this method had already proved of considerable value in the study of tuberculosis. Reference was made to the effect of X rays, radium, and dry heat on the mononuclear cells and to the interesting relations that seemed to exist between the lymphocytes and immunity to cancer. The value of Widal's and Ravaut's method of cyto-diagnosis was discussed, especially with reference to the examination of the spinal fluid. The physiological properties of the leucocytes was next discussed in detail. It was shown that leucocytes can be kept alive for a considerable time after they have been removed from the body. Their power of adhering to a glass surface, as beautifully shown in Wright's experiments, could be utilised as a proof that they were still alive. It was pointed out that the medium in which they are suspended influenced their vitality and power of movement, that they were most active and lived longest in fresh serum, and that their movements and power of adhesion were inhibited by hypertonic and citrate solutions. Their chemotactic and phagocytic properties were next commented upon. In connexion with phagocytosis the opsonic theory of Wright was discussed, and it was shown that opsonic determination explained many of the hidden workings of the mechanism of immunity. The power of intracellular digestion of the polymuclear and large mononuclear cells was one of the means by which the organism destroyed invading microbes. It was not, however, the only bactericidal property of the white cells, as the experiments of Wright had shown that the leucocytes had, without phagocytosis and intracellular digestion, the power of killing or inhibiting the growth of micro-organisms. It was pointed out that Metchnikoff's historic theory that immunity and healing were essentially due to the activity of the cells of the body, and especially of the leucocytes, had gained much support from recent work. It was emphasised that the work of Wright had shown that the bactericidal action of the leucocytes and of the body fluids was more powerful than that of any antiseptic, and that the only logical method by which the treatment of septic wounds and infections could be advanced was by a more thorough study of the mechanism and physiology of healing. It had been shown that the growth of the pneumococcus in the fresh blood of animals

was directly proportional to the susceptibility of the species from which the blood was obtained, and that this property of fresh blood of inhibiting the growth of organisms was in the main due to the leucocytes.

The trend of the address was to show that cellular properties are more important than humoral and that advance in immunity might be expected from a more detailed study of the action of living leucocytes and tissue cells, and since these cells could now be kept alive for prolonged periods their study in vitro opened up a fruitful line of research.

A hearty vote of thanks was passed to the President for his address, and a similar compliment was paid to Mr. Andrew Fullerton, the outgoing President, for his services to the society during his year of office.

The second meeting of the session was held on Nov. 18th, with Dr. HOUSTON in the chair, when Mr. P. T. CRYMBLE gave an address, with lantern illustrations, on

Obstructions of the Alimentary Tract.

The relations of the oesophagus were demonstrated and cases described showing obstruction at the upper and lower ends and in the mid-thoracic region. The various pathological conditions of the stomach revealed by radiography—cancer, ulcer, hour-glass stomach, and pyloric obstruction—having been described, a number of cases were brought forward in support of the contention that in the diagnosis and treatment of gastric lesions radiography is essential. Acute obstruction of the small intestine was a common sequel of abdominal operations, especially when drainage had been carried out. Three patients were brought forward who had been operated on for acute obstruction of the small intestine on the same day. Ileal stasis was dealt with, and cases before and after operation were shown. Most cases of seven-hour ileal residue showed at operation some anatomical cause of the delay, but in a small number of cases no abnormality could be detected. Mobile caecum, its diagnosis and treatment, was discussed. No conclusion had yet been arrived at by the speaker as to the best operative procedure to adopt, or as to whether any operative procedure at all was indicated. The caecal gas bubble was a useful guide to the radiographer in distinguishing between ileal stasis and a pelvic caecum. The opaque enema had been more useful than the meal for the location of colon strictures at the commonest site, the pectin-rectal junction.

The address gave rise to an animated discussion, in which Messrs. Mitchell, Fullerton, Kirk, Stevenson, Irwin, and Beath took part.—Mr. Crymble replied.

NORWICH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.

A CLINICAL meeting of this society was held at the Norfolk and Norwich Hospital on Nov. 2nd, Sir HAMILTON BALLANCE, the President, in the chair.

Dr. H. J. STARLING showed two cases of

Complete Heart-block.

The first case was that of a man, aged 51, a farm labourer, who had never had any serious illness except an attack of influenza 20 years ago. He had always been a bit "short-winded," which prevented him from doing long distances, but he had been able to do hard agricultural work. The family history was good, except for one sister who had epileptic fits. In November, 1918, the patient had his first fit; three more occurred that month, and then no more until February, 1919, since when they had become more frequent. Patient had passed urine during one or two of these attacks. He was admitted to the Norfolk and Norwich Hospital on March 5th, 1919, under the care of Dr. A. J. Cleveland. The report of his condition then was:—

"A strong well-built man with good colour and a genial, somewhat naive, expression. His pulse-rate varies from 40 to 60, and is very irregular. He has about two or three times during an hour there will be intermission of the pulse for a varying period. If two or six beats only are lost, the patient stops talking or eating, appears confused with flushed face, and then resumes his normal condition as the pulse becomes regular. During the longer intermissions the attack begins as has been described, the face becomes cyanosed, the respiration quickens, becomes deeper, and finally stertorous, and after two to three seconds a typical shuddering with twitching of the face and jerking of the limbs. When the ventricle resumes its beat the symptoms gradually disappear and the patient regains consciousness in half to one minute. These attacks could be precipitated by the patient swallowing once or twice."

On May 31st, 1919, the heart-block became complete, the pulse-rate dropped to 33 per minute, and had been perfectly regular without intermission, and since this date the man had no more fits. Since July 31st, 1919, he had done a full day's work in the fields every day. The second case pre-

sented very similar symptoms. Dr. Starling exhibited a chart which he had drawn up to show four different conditions in which a slow pulse occurred:—

(1) The so-called *vapo-tonic* pulse; with exercise or the administration of atropine the pulse-rate increased gradually, and on cessation of the pulse slowed down gradually in the latter process the heart sounds were heard normally in relation to the pulse beat.

(2) *Bigeminal* pulse, occasioned by a ventricular extra-systole occurring instead of every alternate beat; the extra-systoles disappeared as the pulse-rate quickened, but reappeared as the pulse slowed. When the premature beat reappeared the heart sounds were triple—"lub-dup" for the normal beat and a short "lub" for the premature beat, which failed to open the aortic valves, and therefore was not felt at the pulse.

(3) A 2-beat-block which disappeared on quickening the pulse. As the pulse slowed, coincident with the return of the missed beat, a silent pause occurred in the heart sounds.

(4) *Complete heart-block*, in which neither exercise nor atropine had any quickening effect on the pulse, which remained unaltered in rate.

Dr. Starling's cases were discussed by the PRESIDENT and by Dr. P. W. BURTON-FANNING, Dr. W. WYLLIES, and Dr. H. MURK EVANS.

Dr. MAXTED showed a case of Quinine Amblyopia.

Dr. I. D. DICKSON gave particulars of a case which he believed to be Ménière's disease.—Dr. S. BARTON considered that "aural vertigo" was a more appropriate diagnosis in such cases, of which he had seen several.

Dr. A. CROOK showed the following specimens, and gave particulars of the cases: (a) A Piece of Placenta removed from the uterus of a primipara on the eleventh day after delivery for repeated severe hemorrhages; (b) Placental fragments removed from the uterus of a primipara on the eighth day for pyrexia with rigors; (c) a specimen of the rare condition known as Placenta Succenturiata. Dr. Crook laid particular stress on the importance of a thorough systematic examination of the placenta in all cases of labour. He thought that practitioners were rather too apt to look on the third stage of labour as a sort of bugbear; he deprecated any attempts at undue haste in expressing the placenta.

The PRESIDENT showed two cases: (1) An old-standing case of Severe Burn of the Arm over the Elbow-joint, exposing the muscles, which had been treated by the implantation over the burnt area of a large skin flap from the side of the chest wall, with satisfactory results. (2) A girl of 19 with a bony swelling which filled up the whole of the left temporal region, for which he proposed to do a decompression operation.

Mr. G. NOON showed a case of Syphilitic Disease of the Joints.

Dr. BURTON-FANNING related a case which he considered to be one of

"Masked Tuberculosis."

The patient was a boy who had been sent into hospital as a case of asthma. He was kept in bed for two or three weeks, though when the temperature was carefully and systematically taken it was frequently normal, yet several typical rises were recorded. There were no physical signs, but by rest in bed the boy gained 2 or 3 pounds a week in weight. Though an absolutely positive diagnosis could not be made, yet, judging from the occasional appearance of typical tuberculous temperature and from the gain in weight by rest in bed, Dr. Burton-Fanning came to the conclusion that the case was one of masked tuberculosis, and he emphasised the importance in doubtful cases of at least two weeks' rest in bed with careful observation of the temperature. The oral temperature should always be corrected by taking the rectal as well.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

At a meeting of this society held on Nov. 4th, with Dr. F. J. SADLER, the President, in the chair, Mr. G. WILKINSON read a paper entitled

"Modern Theories of Hearing."

After a brief review of the structure and mechanism of the middle and internal ear, he gave a brief demonstration of the principles of resonance, illustrated by experiments, and showed how analysis of compound into simple tones was effected by a series of resonators. Helmholtz's application of resonance to explain the analysis of sound by the cochlea was described. In support of Helmholtz's view that each of the transverse fibres of the basilar membrane had its own proper period of vibration, progressively increasing from the base to the apex of the cochlea, were the facts: (1) that these fibres increased progressively in length from base to apex; (2) that (as pointed out by Professor A. Gray) the external ligament probably regulated the tension of the transverse fibres, and that this ligament progressively decreased in bulk from base to apex. It was therefore probable that the tension of the transverse fibres progressively decreased (3) the "load" on the transverse fibres—i.e., the mass of the perilymph and endolymph intervening between each string and the oval

and round windows—progressively increased. It might be difficult to accept the view that these factors were sufficient to give the basilar membrane the amount of differentiation required for a series of resonators extending to nine octaves; but at all events they would give sufficient differentiation entirely to destroy the value of the basilar membrane as a simple recorder of the movements of the stapes as postulated by the theories of Wrightson and Rutherford, or as a simple yielding membrane without resilience, as pictured by Ewald, Meyer, and ter Kuile. For such a purpose a simpler structure would answer better.

With regard to Wrightson's theory, why was a large and important nerve like the auditory, with its 4000 or more branches in the cochlea at all necessary for the performance of so simple a function? Were we to believe that each of these 4000 nerve twigs were carrying identically the same message to the brain at the same time? There seemed to the lecturer to be a fundamental misconception in all theories of analysis of sound by the brain (such as Wrightson's, Rutherford's, Meyer's, Lipps'). The essential act in sound analysis was not the resolution of pressure curves into their harmonic components, but the instantaneous measurement of small intervals of time. The disintegration of one of Wrightson's sound pictures necessitated the immediate recognition by the hearing centre of differences in the phase periods of his curves amounting to 100,000th part of a second. The measurement of time was essentially a mechanical operation. All our methods of measuring time depended on instruments giving harmonic vibrations. The theories of Ewald and ter Kuile did not seem to offer a satisfactory explanation of the resolution of compound into simple tones. Up to the present no satisfactory working model of the cochlea had been made. Helmholtz's theory undoubtedly gave a fuller and more comprehensive explanation of the facts of hearing than any other. The difficulty of accepting it lay in certain anatomical details of the structure of the cochlea, which Mr. Wilkinson described and commented on, but added that in his opinion, were Helmholtz's theory rejected, to the present no alternative explanation had been offered, the inherent difficulties of which were not even greater. To speak of the central analysis of sound was only to push the explanation a step further back into the regions of the unknown.

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

THE third meeting of this session was held in the Faculty Hall on Nov. 19th, when Professor E. P. CATHCART lectured upon

Psychic Secretion: Its Relation to Digestion.

Professor Cathcart opened his lecture by referring to the causes of hunger and appetite, and showed that they were not synonymous terms. Psychic secretion, or the secretion produced by mental impressions, was correctly named as it was mainly dependent upon memory. Observations which had been made upon human subjects had virtually substantiated Pavlov's findings in dogs. The so-called continuous secretion of gastric juice gave a fluid which differed chemically from appetite juice, which possessed a higher degree of acidity. Referring to what, clinically, is called hyperacidity, Professor Cathcart considered that this was probably a misnomer, as human juice might contain 0.5 per cent. of HCl without causing discomfort. An amount equivalent to 22 c.cm. of commercial HCl was secreted daily and the quantity of pepsin secreted in 24 hours, 525 mg., would digest 1.5 kilos. of coagulated egg-albumin in three hours. Professor Cathcart next discussed the effect of various factors on appetite juice—the appearance of the food, its smell, its taste, and the influence of chewing, the sound of food cooking, the thought of food and its palatability or unpalatability. The effects of prejudice and emotion upon secretion were next considered and the lecturer told of a soldier who, in course of anti-gas training, had to pass through a chamber of strong poison gas and was very much worried about it. In the test he inhaled some of the gas and died 4 hours and 10 minutes after his last meal. The meal was found in the stomach absolutely as eaten, without the slightest sign of digestion having taken place. In conclusion, Professor Cathcart referred to the difference between conditioned and unconditioned reflexes—the latter dependent upon some stimulus such as the sight of food, the former a reflex built up through time. As an example of the conditioned reflex the lecturer described how, by lightly brushing the same small area on a dog's shoulder at the same time as meat powder was given, after a time the mere brushing of that particular part of the shoulder was sufficient to cause a secretion of juice. The part played by environment was considered and its importance emphasised.

THE CARE OF CRIPPLES: AN IMPORTANT CONFERENCE.

A Joint Conference of the Invalid Children's Aid Association and the Central Committee for the Care of Cripples was held at the Guildhall on Nov. 16th and 17th; when the opening address was delivered by Mr. J. HERBERT LEWIS, M.P., Parliamentary Secretary to the Board of Education. Sir WILLIAM BENNETT, chairman of the Invalid Children's Aid Association, presided at the morning session on Nov. 16th.

Survey of Work for Physically Defective Children.

Mr. LEWIS, after referring to the work of the Invalid Children's Association, pointed out that it was essential that education should go hand in hand with remedial treatment, otherwise the children, when cured of their physical ailments, might find themselves without the intellectual equipment necessary to face the world with any prospect of success. During the past 20 years great progress had been made in the establishment of schools for crippled children. Since 1900 123 day schools, accommodating over 9000 children, and 12 residential schools, accommodating 5540 children, had been established. A large accession was required to the numbers of orthopaedic surgeons, nurses, and teachers available for the service of the prevention and treatment of crippling ailments. When people realised that with proper treatment 75 per cent. of the child cripples of this country could be turned into satisfactory workers they would also realise that the expenditure of money on their treatment was not merely an act of merit but a sound investment, for the children would become useful, self-supporting citizens.

Mrs. TOWNSEND, Invalid Children's Aid Association and Central Committee for the Care of Cripples) read a paper giving a survey of work for I.C.A.A. children since the last Conference. She emphasised the need for the combination and co-ordination of the work of the State, the local authority, and voluntary agencies, so that each might concentrate on those functions for which it was particularly qualified, and spoke of the need for more residential accommodation and more educational facilities. The State had now recognised its responsibility for the child out of school. The Invalid Children's Aid Association should act as a link between the hospital and the local authorities on one side, and the child and its parent on the other.

Miss ADLER (L.C.C.), speaking on local aid for physically defective children, gave a critical résumé of legislation on their behalf from 1899 onwards. She referred to the difficulty of transporting recumbent "up" patients to outpatient departments, and advocated residential schools for such children. The L.C.C. were now dividing their physically defective schools into junior and senior schools in order to provide better educational facilities.

During the discussion on these two papers Mrs. TONNEY (secretary, Joint Parliamentary Advisory Committee) paid a graceful tribute to the memory of Mrs. Humphrey Ward and her work in connexion with crippled children. Money spent on the latter, she said, a profitable investment, but we have a duty placed in honour on us to find the right system of education for them.—Dr. A. H. BYGOTT (West Suffolk) mentioned the scheme for treating crippled school-children which had grown out of the work on behalf of war cripples in his area.—Mr. SHEPHEARD (secretary of the Shaftesbury Society, better known as the Ragged School Union) was strongly in favour of co-ordination of effort on behalf of crippled children and offered the services of 1000 voluntary workers belonging to his society to a united body for helping cripples.—Miss CHAMFNEY (Plymouth) claimed to have discovered a new agency for collecting funds—viz., the parents of crippled children.—Lady GALWAY (London) pointed out that one great difficulty in making censuses of crippled children was that parents would not admit that their children were cripples.—Mr. G. R. GRINDLESTONE read Dr. E. W. HOPE's paper outlining maternity and child welfare work in Liverpool.

Dr. JOHN ROBERTSON (M.O.H., Birmingham), in his paper on child welfare work in that city, said it appeared to him that the time was opportune for taking a further step forward in dealing with the chief crippling diseases of children. During the past 15 years great progress had been made in two directions: (1) Treatment had been so improved that with few exceptions a child should not be allowed to become a cripple from tuberculosis or rickets; (2) hand in hand with this great advance it had been possible, largely as a result of voluntary effort, to demonstrate the kind of institution needed and the kind of supervision and after care which was essential. A considerable amount of inefficient treatment prevailed in some districts because newer methods were not appreciated or because facilities for their adoption were not available. Similarly, some institutions would be

found unsuitable or badly worked. The central fact was that to-day in the best institutions in the country we could send children who would otherwise have become helpless cripples, treated and cared for in such a way as to make them self-supporting individuals when they grow up. In course of time it will become a disgrace to an authority to allow any child to slip through its hands as a permanent cripple. In Birmingham 40 per cent. of the crippled children were cripples on account of tuberculosis, 24 per cent. suffered from infantile paralysis, 10 per cent. from rickets, and 10 per cent. from congenital deformities. He moved a resolution:—

That the time has come when a national inquiry should be made into the nature and extent of crippling among children, with a view to its prevention and remedial treatment.

In the course of the discussion Dr. G. A. AUDEN (S.M.O., Birmingham) said that he had found correct enumeration of the cripples in his area an exceedingly difficult matter. Two main elements of care of these children presented themselves, each of which might be subdivided into three parts, viz.:—

- | | |
|-------------|--|
| Physical | (Surgical)—Actual treatment of the physical defects. |
| Medical | (General and particular treatment of the child. |
| Dynamitic | —Remedial exercises and massage. |
| Educational | —To add to happiness and interest of life. |
| Social | Industrial—Training in employment. |
| | Economic—After care, assistance, &c. |

It must be borne in mind that the training in a handicraft must make the resulting work so excellent that it will find its own market, and that the physically incapacitated worker should be a valuable employee. Despite his disability and possibly reduced output, Dr. Robertson had pointed out that where an active campaign was tried out against open tuberculosis in the adult, there would be found a reduction in the amount of non-pulmonary tuberculosis in children. The speaker's figures confirmed this view. In a careful census of cripples made in Birmingham in 1910 it was found that 39.4 per cent. of the crippled children were suffering from non-pulmonary tuberculosis; but this year, after ten years of an active anti-tuberculosis campaign, the percentage was found to be 32.4. This latter figure agreed absolutely with the figure now given by Dr. Hope for Liverpool (33 per cent.).

Mr. HANSELL (ex-headmaster, Old Kent-road Physically Defective School, L.C.C.) advocated maintenance grants for crippled children from 14-16 years of age, who often lacked proper food and clothing. These children were of wage-earning age, but should be kept at school. Delicate children, handicapped by absences from school, cannot be brought up like ordinary children; the standard of work at a P.D. school cannot be brought up to that of a continuation school. As much variety of mental and manual teaching as possible must be given in the P.D. school, as crippling is associated with so many varieties of physical defects. Lady JONES (London) wanted to know if the high tenement houses and cupboard beds in Glasgow were responsible for rickets. Dr. ROBERTSON, replying, said he thought that to be the case; in Birmingham the children could run out into the street, and do not suffer so much from rickets. The resolution was seconded by Lady GALWAY and carried unanimously.

Voluntary Agencies.

In the afternoon the chair was taken by Sir ARTHUR STANLEY, chairman of the Central Council of Infant and Child Welfare.

In his paper on the London County Council and the Invalid Children's Aid Association, Captain O. E. WARREN, L.C.C. (chairman, Public Health Committee), traced the growth of co-operation between the London County Council and the Invalid Children's Aid Association until ultimately a formal agreement was entered into between the two bodies for the benefit of physically defective children, particularly tuberculous children.

Dr. JAMES WHEATLEY described the orthopaedic system in operation in Shropshire, where experience had shown a hospital of from 200 to 250 beds to be the ideal. On Oct. 20th, 1920, there were 109 patients, apart from pensioners, in the hospital belonging to the county of Salop—i.e., 109 beds occupied from a population of about a quarter of a million. This number was made up of 44 tuberculous cases, 18 deformities from poliomyelitis, 9 from rickets, 6 from birth palsies, 3 congenital deformities, 3 postural deformities, 9 osteomyelitis and osteo-arthritis, 7 old fractures, &c. These numbers included a certain proportion of cases representing the accumulation of several years. Fourteen after-care centres had been started in the country, and these centres were also used as places where preliminary examinations could take place before admission to hospital.

Dr. G. C. TAYLOR (M.O.H., Berkshire) thought the chief difficulty was to find money to provide the subcentres.

Dr. K. FRASER (Assistant M.O.H., Cumberland) observed that in Cumberland the N.S.F.C.C. had been very useful in securing continued treatment of children suffering with surgical tuberculosis. He moved, and Dr. WHEATLEY seconded, the following resolution, which was carried.

That the age at which grants are available for the treatment of cripples should be extended to the maximum age for continuation classes under the Education Act, 1918.

Dr. D. C. KIRKHOPE (B.O.H., Tottenham) made a valuable contribution to the Conference in an address on the Conjunction of Services of the Tottenham Education Committee and the Tottenham Invalid Children's Aid Association. In his area crippled school children were provided with surgical appliances through the I.C.A.A., the parents usually paying 25 per cent. of the cost, the local Education Committee 37½ per cent., and the Board of Education 37½ per cent. The I.C.A.A. ordered the instrument and saw that it fitted, calling in the aid of the orthopaedic surgeon. He complained of the extortion of the makers of artificial appliances; his statements were subsequently upheld by several other speakers. Surgeons at hospitals, he considered did not pay sufficient attention to the growth of the child when ordering instruments; we want some mechanical genius to devise appliances which would allow for growth.

Mr. H. S. WOOLCOME (C.O.S.) spoke on "The Importance and Advantages of Co-operation between Voluntary Agencies." He was much impressed by the selfishness often exhibited by the wage-earner, who in his experience did not let his wife know what he was earning, and was accordingly assessed too low by charitable and other agencies, unless inquiries were made of his employer.

Sir ARTHUR STANLEY, in concluding the proceedings, mentioned that the members of the British Red Cross and Order of St. John, after finishing their war work, had asked him what they could do at home. One of the schemes suggested was in connexion with child welfare. The Central Council of Children's Welfare had been formed, on which were represented practically all the important child-welfare societies.

Later a short meeting for I.C.A.A. representatives was held in the Conference chamber, when Miss BRAVAN (Liverpool) gave an address on Federation. The root idea was that too many societies were called "national," but dealt mainly with work in London; provincial workers for cripples should unite locally, and bring down this become federation to one another and to London bodies.

Work in America and on the Continent of Europe.

On Wednesday, Nov. 17th, at the morning session, Sir ROBERT JONES (chairman, Central Committee for Care of Cripples) took the chair.

Mr. H. S. PLATT (Manchester) gave a review of the provision for crippled children in America and on the Continent. Dr. F. C. SHRUBSALL (L.C.C.) dealt with the types of provision made by education authorities for physically defective children, insuring the King's Canadian Camp School at Rusher Park, which provided for 364 boys over the age of 10, who resided in hutments erected by the Canadian Government, and a school for 60 girls opened at Wanstead House on the sea front at Margate.

Mr. DOUGLAS MCMURTHUK (President of the Federation of Associations for Cripples in New York City), whose speech was much appreciated by the audience, said that in New York City they had started a district nursing association exclusively for cripple children. These nurses were soon found to be the best agency for the early discovery of these children. Recently they had also arranged for certain mothers of cripple children to notify the association of any child living within their area whom they suspected of a deformity, a fee of about 1s. being paid for each case which was then visited by the nurse. Through the newspapers they then organised a corps of voluntary teachers for home-bound children; this work, he was pleased to say, had been taken over by the city education authorities. The difficulty of finding employment for these cripples confined to their homes had been successfully tackled; they were taught to carry out a subdivided process, often of some little-known trade. Very few were self-supporting, but the work they were able to do meant a lot to them. The association found that their employment bureau was in one way almost as good as a training school; it has been used to make a survey of occupations and processes available in New York for cripples, and in experiments of employment of cripples in different processes. He thought our provision for the cripple by public authorities better than that made in the U.S.A., but considered that a campaign to educate the public to accept the cripple as a worker would be of service to us.

Mr. FRANK MATTHEWS (Birmingham Union for Cripples) stated that out of 900 cripples he only knew six to be home-bound, excluding mental defectives.

Mr. R. C. ELMSLIE (St. Bartholomew's Hospital) said his criticism was that institutions provided by education authorities were not founded for combined surgical treatment and education. Much improvement had taken place in this respect for example, there were formerly many hunchbacks at the London Physically Defective Schools, but nowadays this deformity was much less frequently met with. There is still a lack of appreciation of what can be done for certain deformed children. He had been frequently

told that some child with an amputation could not wear a peg leg, whereas in reality no one could wear a peg leg as well as a child. Dr. Shrubshall did not criticise the convalescent home, often called a surgical home even when it carried out no surgical treatment, and provided neither mechanical appliances for its inmates nor any education. Such places should be under proper surgical and educational inspection. He had recently seen a child who had been for some considerable time in an institution especially for cases of surgical tuberculosis, but had not been properly treated there. He wanted the Ministry of Health or the Board of Education to ask for adequate surgical inspection of such institutions.

Sir HENRY GAUVAIN followed with an account of the facilities for education at the well-known Treloar institutions at Alton and elsewhere.—Mrs. BURNLEY (Bradford) described the cripple school at Bradford, where no child was wearing a "horrible old iron," but splints of much lighter material.

The paper on "Heart Cases and the Edgar Lee Home," was read by Dr. J. ANDERSON SMITH (medical officer of the home), who said he dealt with 24 children suffering from heart trouble and under limits treated them as if they were ordinary children provided they exhibited no undue breathlessness or rapidity of pulse on exertion; doubtful cases were placed on probation. Patients with mitral stenosis (not very common in children) and advanced cases of mitral and aortic disease did not seem to improve like the others. The children play croquet, mild cricket, punch-ball, and clock golf, and are given physical drill, which is not overdone. The justification for a special home for heart cases was that all the boys had the same handicap and started from the same level. He considered that the Edgar Lee Home should be affiliated to a heart hospital.

In discussing the paper Dr. C. J. MAGALISTER (Liverpool) said that they were able to turn out 70 per cent. of the heart cases at Heswall with sound hearts, because they could admit the child in an early stage of the disease and keep him for an indefinite period. In Liverpool the I.C.A.A. endeavoured to get parents to bring children back to the same hospital for treatment when necessary.—Dr. LANGLEY (Manchester) quoted a report of a Lancashire assistant county school medical officer, who found that 29 per cent. of children were affected with rheumatism.—Sir ROBERT JONES, in closing the session, complimented Mr. Elmslie on his courageous criticism.

Scheme of Central Committee: Training and Supply of Nurses.

In the afternoon Sir NAPIER BURNETT, F.R.C.S., occupied the chair. The scheme of the Central Committee for the Care of Cripples in England and Wales was explained by Sir ROBERT JONES and Mr. G. R. GIRDLESTONE. The outlines are as follows:—

(1) A central coordinating body which should work with the Ministry of Health and the Board of Education.

(2) Local committees for the care of cripples in every district.

(3) Hospital schools. The provision in England and Wales of an adequate number of hospital schools for crippled children with open-air wards.

(4) Each hospital school should be run under its own local committee, with its own teaching staff and handicraft workshops. Working in direct union with the hospital school should be:—

(a) Out-patient clinics for: 1. The examination of children sent up for consultation. 2. The treatment of cases which can be effectively treated as out-patients. 3. The after-treatment and supervision of children discharged from the hospital school. 4. The maintenance of touch with old patients so that advice and help may be given as to suitable employment.

(b) Invalid schools, day and residential, for the minority of children who have not been cured or benefited sufficiently to enable them to attend ordinary classes. In large towns special day schools will fill the need, but for children in other districts, who are prevented from receiving education by their persisting disability, residential schools are necessary. For the sake of simplicity and economy these should be part of the establishment of the hospital school, but in a separate wing. These children would be drafted into this when fit to leave the hospital, but would continue to benefit from the teaching, handicraft shop, and surgical supervision.

(5) It is vital that those responsible for the treatment should be experienced in orthopaedic work. This applies both to the surgical staff and the hospital and after-treatment sisters.

(6) There should be provision for paying patients.

(7) Wards should be available for adolescent and adult cripples and persons suffering from injuries needing orthopaedic treatment.

(8) Where efficient organisations for crippled children exist these would be welcomed in the scheme, which should be sufficiently elastic to cover some diversity of method.

Miss WOODALL, speaking from 15 years' experience of public health work, held that a valuable function of voluntary workers was the raising of money. Local voluntary committees should employ a trained nurse; if unable to afford one they should endeavour to obtain the right kind of information from the local public health department. Indeed, it might be questioned if another new organisation were required; the health visitor and school nurse have for some years followed up practically every child in their area, especially children defective from birth.—The view of Mr. Elmslie was that any instituted scheme should be properly

coordinated with the work of hospital schools. Elementary education in orthopaedics should be given; every clinician should learn what can be done for deformities, and should be able to undertake those minor orthopaedics which at present were not dealt with by doctors—much to the pecuniary benefit of bone-setters. Mr. Elmslie's remarks received much applause.—Mr. MCGRATH AITKEN (Baschurch) pointed out that cripple girls of 16 years were making excellent standardised splints from measurement charts.—Dr. FLORENCE BARRIE LAMBERT (Ministry of Health) referred to the paramount importance of interfering as little as possible with the child's schooling.—Miss M. H. JOSEPH (Kensington) wanted this new orthopaedic hospital to be situated in London, where there was great need of it.—Miss STEEL (Manchester) said that the workshops mentioned were wanted at once; artificial appliances should be made of lighter, less lasting, and cheaper material, and should be forthcoming more quickly.—The Hon. Mrs. VAUGHAN WILLIAMS told the Conference that the work of the Surgical Supply Depot, Kensington-square, started for soldiers, was being continued for children; an appliance usually sold for £5 she could supply for 15s.—Mr. GRUNDY, of the National Council of Social Service, Stepney House, suggested that the Central Committee should distribute to all voluntary workers printed information on the preliminary symptoms of crippling.—Miss BEAVAN (Liverpool) and several other ladies wanted to know how they were best to get the children to the orthopaedic surgeon; several modes were detailed, but the Conference finally approved of asking the school medical officer to arrange for such children when treated by general medical practitioners to be seen by orthopaedic surgeons.—Mr. PLUMMER (Bermondsey) wanted all doctors to be specialists and not handy-men.

The paper of Miss HUNT, who, with Mr. Hunt, has had many years' experience of a convalescent home at Baschurch, out of which has grown the Shropshire Orthopaedic Hospital at Oswestry, was read by Miss TOWER. It dealt with the training and supply of orthopaedic nurses. After two years' work especially devoted to ordinary hospital nursing, but not dusting or sweeping, trainees should study during their third year for the usual official certificates in massage and remedial exercises.—Dr. W. T. G. PUGH (Carshalton) held that nurses needed to know when splints are improperly applied and how to reapply them.

Sir NAPIER BURNETT, in conclusion, advised his hearers not to depend altogether on the Ministry of Health and the Board of Education, but to get on with the great work of educating public opinion. At the same time the official agencies, with their excellent organisation, could easily do much in the way of propaganda; the school attendance officer should leave leaflets in every home, letting the parents know what could be done to prevent and cure crippling.

Later in the afternoon a meeting of the I.C.A.A. and the Central Committee for the Care of Cripples was held, at which plans for defining their several spheres were discussed. A certain measure of agreement had been reached before the meeting, whereby the I.C.A.A. was made responsible on the whole for individual cases, and the Central Committee for the censuses of cripples and the medical supervision of the work carried on at the new orthopaedic hospitals and subcentres, &c., which, it is hoped, will more or less shortly be established.

Visits were paid to the following institutions: Queen Mary's Hospital for Children, Carshalton; Springwell House, L.C.C. School for the Tuberculous; Stowey House Open Air School, L.C.C. School; Mulberry Walk Surgical Requisites Depot; and St. Vincent's Cripples' Home, Eastcote, Pinner.

Conclusion.

Owing to the excellent organisation of Mrs. Munro and Mrs. Townsend and their staff the Conference achieved a marked success. The proceedings were illuminating. The note struck throughout was one of willingness to sink any personal element and to unite to promote the well being of the child cripple. It is difficult to decide whether the Conference should have taken into consideration the industrial cripple or left this unfortunate person almost entirely unconsidered as they did. If the social workers had been more limited the time available would have been adequate. Seeing that the movement on behalf of child cripples owes its impetus largely to the war cripple, who in his turn profited by Belgium's wonderful work for the industrial cripple at Charleroi, it is perhaps unfortunate that the needs of the industrial cripple were not more fully considered. The writer ventures to suggest that this problem deserves a conference at no distant date, under as distinguished chairmen as Sir Arthur Stanley and Sir Robert Jones, the humanitarians largely responsible for this present movement.

Reviews and Notices of Books.

GRAY'S ANATOMY.

Twenty-first edition. Edited by ROBERT HOWDEN. With Notes on Applied Anatomy by A. J. JEX-BLAKE and R. JOHN CLAY. London: Longmans, Green, and Co. 1920. With 1215 illustrations. Pp. 1186. 42s.

The present edition of this leading text-book is worthy of its reputation. Revision has been carried out without appreciable addition to the length of the text, and several new figures have been added. Among these last we see with pleasure an excellent (and much needed) representation of the arteries of the broad ligament, from an injection by Hamilton Drummond, while in the embryological section we are glad to note Streeter's figures of the developing cranial sinuses, and the replacement of Born's diagrams of ventricular division by others more indicative of the conditions found in the human heart. This book, under its present editor, has the merit of presenting the work of English writers up to date, giving references to the original papers. This is a custom which we would like to see more generally adopted, and it does not prohibit similar treatment of foreign writers when these are appropriate. A monograph is not necessarily more authoritative because it is written in German or some other alien tongue. "Gray" has always been a favourite with London students, perhaps because it came to the birth in the metropolis, and it is unfortunate, from the London point of view, that the Basle nomenclature is in use in the book; on the other side, however, it can be pointed out that the older English terms are given in brackets, so that the London student can still use this work with some little trouble in transcription.

On this matter of nomenclature the editor, in his preface, maintains that the Basle terminology, for the most part, does "not consist of new terms, but of a selection of old ones, together with such modifications and additions as make for accuracy and brevity in description." It would seem reasonable; therefore, to utilise the labour and to adopt this terminology as a basis for future revision, as suggested by the American anatomists. Professor Howden must surely have smiled when he wrote of the "brevity" of the B.N.A., and, as for the claim on its behalf of antiquity and accuracy, we think many anatomists will feel inclined to deny it with great reason. The "claim of long descent" may refer to terms used in other countries, but would hardly seem to apply to those which have been used in England—the thing that chiefly concerns us—and while some of the B.N.A. terms are notoriously inaccurate the rest do not appear to possess any more of the virtue of accuracy than do the English descriptive words which they are designed to supplant. Some English terms have undergone natural change with increasing knowledge, so that our nomenclature is always tending toward greater accuracy, and this national evolution will naturally affect the B.N.A. also. Hence nothing would be gained by changing the nomenclature, save that it might be looked on as a step in the direction of that impossible ideal, the total destruction of the Tower of Babel. Finally, is there any more reason for our adoption of the American standpoint for "future revision" than for the Americans adopting ours?

STUDIES IN NEUROLOGY.

By HENRY HEAD, M.D., F.R.S. In conjunction with W. H. R. RIVERS, M.D., F.R.S., JAMES SIERREN, F.R.C.S., GORDON HOLMES, M.D., C.M.G., THEODORE THOMPSON, M.D., GEORGE RIDDOCH, M.D. In two volumes. London: Henry Frowde and Hodder and Stoughton. 1920. Pp. 802. £3 3s.

In these two handsome volumes, whose format leaves nothing to be desired, the neurologist finds collected papers, dealing mainly with the various aspects of sensation, which have already seen the light in the pages of *Brain*, and which have long ere this established Dr. Head's position as the foremost living authority on

the subject he has made specially his own. The methods employed in testing sensation form a chapter by themselves; an introduction and an epilogue are added, also an appendix reviewing some of the criticisms which have been passed on the author's researches at one time or another. To this appendix the professional neurologist will turn with interest, since it contains an examination of the work of Trotter and Davies, and of Boring, and a criticism of von Frey's criticism. The reader must judge for himself to what extent Dr. Head's conclusions remain unshaken. There is a good bibliography and a particularly useful index.

TRAVAUX NEUROLOGIQUES DE GUERRE.

By GEORGES GUILLAIN, Professeur-agrégé in the Faculty of Medicine of Paris, and J. A. BARRÉ, Professor of Neurology in the Faculty of Medicine of Strasbourg. Paris: Masson et Cie. 1920. Pp. 462. Fr. 18.

THE authors have republished in convenient form a series of papers on neurological subjects written by them in the course of the war and exemplifying in the best manner the minuteness of observation and clearness of exposition which we associate with the French school of neurology. The book is divided into sections dealing with nervous symptomatology, head wounds, wounds of the spinal cord, cases of commotio without external lesion, pathology of cranial and spinal nerves, and a final section of a more general nature. Among the papers we recognise many of which the neurologist has already taken note; mention may be made in particular of those on the redoxes and on organic symptoms following commotio. Taken as a whole, the book redounds to the credit of French neurology, which bids fair to hold as high a place in the future as it has held in the past.

LES MALADIES NERVEUSES.

Cours Professé à l'Université de Louvain. By A. VAN GEHUCHTEN, Professeur Ordinaire. Louvain: A. VUSTRUYS, éditeur. 1920. Pp. 645.

THIS text-book on nervous diseases, the last work of its distinguished author, was due to appear in 1915, but circumstances which need no specific mention made that impossible. To fill duty and pride we owe its tardy appearance now. Here in a well-printed volume, with some 400 illustrations, is to be found the clinical and pathological teaching of one whom neurologists the world over came to honour and to respect. If his fame rests largely on his attainments as a neuro-anatomist, van Gehuchten was none the less a fine exponent of clinical neurology, as not a few of his papers testify; and we trust this record of his professorial course on neurology for students and graduates will be read with interest and profit by many who never knew him personally. The book is not intended for the specialist, bibliographical references being omitted and critical discussions eschewed; but as a sound, concise, and clear presentment of modern neurology the work deserves every commendation.

DIAGNOSE DER SIMULATION NERVÖSER SYMPTOME.

Ein Lehrbuch für den Praktiker. Second, enlarged, edition. By Professor Dr. SIEGMUND EMBES, Vienna. Berlin and Vienna: Urban und Schwarzenberg. 1920. With 25 illustrations and three plates. Pp. 219. M. 56.

WE reviewed this book favourably on its first appearance in 1912, commenting on its usefulness as an aid to the practitioner in the differential diagnosis of disease from the simulation of disease, and pointing out the value of many of the clinical tests described, some at least of which were little known to the English physician, and certainly not in common use. The second edition is an improvement on the other, and on going through it we have found additional information of value in dealing with a very difficult class of case. It is just as important to avoid the erroneous diagnosis of malingering as to be able to make it; and in view of the ever-increasing amount of compensation cases in ordinary practice nothing is more desirable than to

raise the level of diagnostic skill of the practitioner where the problem is one of hysteria versus simulation. An English version of Dr. Erben's book would serve a useful purpose.

TRAUMA UND NERVENSYSTEM.

Mit gleichmässiger Berücksichtigung der Kriegserfahrungen der Entente-länder und der Mittelmächte. By Dr. TH. VON SCHELVEN, Neurologe der Niederländischen Sanitätsmissionen. Berlin: Verlag von S. Karger. 1919. Pp. 304.

Dr. Schelven has set himself a laborious task in seeking to furnish a comprehensive study of the diseases of the nervous system either caused or aggravated by trauma. By far the greater part of the book is taken up with organic neurology, only some 20 pages in all being devoted to the neuroses. He has dealt generously with lesions of peripheral nerves, in war and peace, and with head and spine injuries, embodying in his pages with some completeness what the war has taught us of such conditions as total transverse lesions of the cord, reflex paralysis, and so on. We observe, however, that in the chapters on head injuries there is but little discussion of the important question of traumatic tabes, traumatic disseminated sclerosis, &c., since authoritative pronouncement on the possibility or otherwise of these states being in actual fact aggravated by trauma is still lacking, and many of the instances quoted are far from convincing. In spite of difficulties the author has acquitted himself well, and has published a handy compendium of his subject. By way of minor criticism it may be noted that his habit of citing authors without giving the references to their publications is pushed to an unreasonable extent.

MIDWIFERY.

1. *Midwifery*. Second edition. By Ten Teachers under the direction of COMYNS BERKELEY, M.A., M.D., M.C. Cantab., F.R.C.P. Lond., Obstetric and Gynecological Surgeon to the Middlesex Hospital. London: Edwin Arnold. 1920. Pp. 772. 30s.

2. *Handbook of Midwifery*. Fifth edition. By COMYNS BERKELEY. London: Cassell and Co., Ltd. 1920. Pp. 550. 7s. 6d.

3. *An Introduction to Midwifery*. Eighth edition. By ARCHIBALD DONALD, M.D. Edin., F.R.C.P. Lond., Professor of Obstetrics and Gynecology, Manchester University. London: Charles Griffin and Co., Ltd. 1920. Pp. 192. 6s.

1. In this new edition the changes are mainly those of revision, but the editors have added a new chapter on antenatal hygiene, and also a brief but very clear and helpful review of the main facts of proteid metabolism, and the oxidation of fats, and their modification in acidosis. This section will certainly help the student to obtain a clearer conception of the important subject of toxæmia in pregnancy, and is a valuable addition to the book. It is a little doubtful if the paragraphs on the modern bio-chemical methods of testing renal efficiency will really prove as useful as the editors appear to think; the question is a very complex one, and there is evidently still a good deal of difference of opinion among those best able to judge of the real value of these tests and the inferences to be drawn from them in varying clinical conditions. If, however, the description stimulates the interest of the student in the subject, and encourages him to acquire further knowledge, this will be a distinct advantage. We can thoroughly commend the chapter on the modern methods of dealing with difficulties in breast-feeding, and the various methods of supplementing breast-feeding so as to avoid weaning the baby. The advice given is sound, and if followed by the number of women suckling their babies. This is a result much to be desired, as the principle which has hitherto been acclaimed, as the writer says, merely with lip service, and has not been fought for with conviction. Let us hope that the reader from the perusal of this section will be convinced that there are relatively few mothers who are really unable

when properly managed and supervised to nurse their babies. The book is on sound lines.

2. This is one of the most complete handbooks of its kind, and its popularity is demonstrated by the number of editions which have appeared and the number of times it has been reprinted. It contains a useful section on elementary physiology and also chapters on bacterial infection and immunity. The part of the work dealing with midwifery is succinctly and clearly written, and should prove a valuable guide for maternity nurses and midwives, while the additional chapters on hygiene, asepsis and antiseptics in midwifery practice, and the action of drugs commonly employed in this branch of medicine greatly increase its utility. The nurse who is reading for her examinations will also derive considerable help from the last section, consisting of questions and answers founded on the Rules of the Midwives Board.

3. This is a very useful little book. The teaching is good and sufficiently full for both the midwife and the junior student, for whom the book is intended. Professor Donald has succeeded well in confining his teaching to the elements of the subject, and he gives sound advice to the midwife as to the things she should and should not do. This, the eighth edition, has been carefully revised and the greater number of the illustrations have been redrawn. We can confidently recommend the book as a sound and well-written elementary guide.

THE HARROW LIFE OF HENRY MONTAGUE BUTLER, D.D.

By EDWARD GRAHAM, late Senior Assistant Master in Harrow School; with an Introductory Chapter by Sir GEORGE O. TREVELYAN, O.M. London: Longmans, Green, and Co. 1920. Pp. 434. 21s.

THE position of the head master of a great public school is one fraught with possibilities for good or for evil, and one of which the responsibility is almost overwhelming. For under the British system boys from 12 to 19 are more affected by their school than by their home life. It is important not only in the universities but in other places of religious and useful learning "that, in the words of the Oxford Bidding Prayer, "there may never be wanting a succession of persons duly qualified for the service of God in Church and State," and the public schools, besides being in themselves places of religious and useful learning, are the feeders of the universities. Therefore the life of a man who is successful in moulding young natures to these admirable ends is not only of interest in general, but in especial to medical men, who know that one of the great safeguards against disease is a population brought up in traditions of discipline and self-control.

Henry Montague Butler was the ninth child of George Butler, head master of Harrow from 1805 to 1829, a post which he held, in accordance with the easy-going manners of those times, together with the living of Gayton, Northampton, to which he was appointed in 1811. During school-time the parish was cared for by George Butler's father, Weedon Butler, who in his younger days had been curate to the well-known and unfortunate Dr. Dodd, who suffered the extreme penalty of the law for forgery. In 1829 George Butler resigned his head-mastership and went to reside at Gayton, where Henry Montague was born in 1833. In 1836 George Butler was made Chancellor of the diocese of Peterborough and in 1842 Dean, while Henry Montague went to Harrow under the newly appointed Dr. Vaughan in 1846. He had a brilliant scholastic career, and also played against Eton in the Lord's match of 1851. In October of that year he went up to Trinity College, Cambridge, where he finished his undergraduate life as a Fellowship. Between that date (1855) being elected to a Fellowship. He was eventually and 1859 he worked in London as private secretary to Lord Mount-Temple, interested himself in the foundation of the Working Men's College, spent a year in travelling, and returned to Cambridge. In 1859 Vaughan retired from

Harrow. Butler was invited to stand for the vacant post and was duly elected in November, after a close finish with Alfred Barry, the then head master of Leeds Grammar School and later Archbishop of Sydney. He was only 26 when he entered upon his responsible post. He had been ordained deacon in September, 1859, and proceeded to priest's orders in December of that year, the circumstance of his election to Harrow being considered by the bishop in accordance with the Prayer Book as "a reasonable cause" for his not continuing in deacon's orders for the space of a whole year.

At Harrow Butler laboured for 25 years. At his arrival nearly all his staff were older than he, but his unflinching tact and courtesy carried him through; and as for the boys, though they feared him at first, as they came into closer contact with him on reaching the Upper Sixth they got to love him. In his teaching, although he was "a martinet for accuracy in the groundwork of grammar and syntax," yet he also did what few teachers did at that time—made his pupils feel that the classics were real literature. The life of a schoolmaster is at times very wearisome, and to a finished classic nothing can be more wearisome than to hear boys stumbling in a manner which takes all the beauty out of the great passages of literature. But at times these periods of gloom are lightened by flashes of what we can only call the genius of ignorance, and such an instance is given by Mr. Graham in his account of a boy who was asked by Butler to give the parentage of Monmouth; the answer was—"Charles I. and Lucy Glitters"—a combination which, if it had occurred, would probably have saved Monmouth from his mad expedition, for *Surtree's* heroine certainly possessed plenty of common-sense. In another branch of education it will never be forgotten that to Butler Harrow owed John Farmer, to whom he offered the post of instructor of music, after it had been refused by his old friend, the Rev. Charles Gray.

Space fails us to tell of Butler's many other activities, here recorded, but we must mention one. In 1875 the governors demanded that all boarding houses should be inspected by a sanitary officer appointed by themselves. The masters objected on the ground that they were responsible to the head master alone. Butler, however, considered that if he had to enforce inspection and possibly insist on improvement of the relations with his staff might be strained on matters of deep importance. Therefore he supported the governors and the sanitary officer was appointed. Butler left Harrow in 1885, being appointed Dean of Gloucester, which post he retained for 15 months, when, in October, 1896, he was offered and accepted the Mastership of Trinity College, Cambridge, in which dignified position he ended his days in January, 1917.

Mr. Graham's memoir is admirably written and eminently fair. Although he evidently regarded Butler with extreme love and reverence, yet he faithfully records his limitations, and the book is worthy of its subject.

OPERATIVE DENTISTRY:

Principles and Practice. Fifth edition. By JOHN SAXBY MARSHALL. London and Philadelphia: J. B. Lippincott Co. 1920. With 725 illustrations, in addition to 16 plates. Pp. 711. 35s.

This book, as stated in our previous reviews, is really more than a work on operative dentistry, for it contains a most lucid account of the anatomy and pathology of the teeth. It is well illustrated, and the reproduction of microscopical sections on "art paper" enhances their value. It is not possible to refer in detail to the many additions and improvements the author has made in this edition; mention may, however, be made of the introduction of two new chapters—one dealing with septic teeth and the other with surgical operations in cases of persistent chronic apical inflammation. In few books on dentistry is it possible to find a better account of the descriptive anatomy of the teeth. The section dealing with the histology of the dental tissues also calls for special mention, and we note with interest that due credit is given to Mr. Howard Mummery for his well-known researches into the innervation of the

dentine. We suggest to the author the inclusion in a future edition of a full account of the lymphatic drainage of the dental tissues; the excellent work published on this subject by Noyes and Dewey has an important bearing on the relation of dental sepsis to disease in general.

Text-books tend to become overloaded, and it is perhaps difficult for an author in preparing a new edition to decide what to delete and what to add. In this work there are too many descriptions of obsolete theories and methods; as examples we may instance the description of the Bonwill method of rapid breathing as a means of producing peripheral anaesthesia and Richardson's ether spray apparatus. This discursiveness does not alter the fact that the book is one of the most useful of all dental publications.

ELECTROTHERAPY: ITS RATIONALE AND INDICATIONS.

By J. CURTIS WEBB, M.B., B.Ch. Camb. London: J. and A. Churchill. 1920. Pp. 90. 5s. net.

This book has been written for those who wish, not to practise electrotherapy, but to learn how electricity acts in the treatment of disease and to know the maladies for which it may be usefully employed. The book commences with a chapter on preliminary theory, and an attempt is made to explain the method of action of electricity in "restoring normal function." This theory is ingenious, but furnishes no indication regarding the current which should be selected for the malady to be treated. In subsequent chapters, however, the author describes ionisation and the action of the galvanic current. He points out the inability of ions, when introduced through the skin, to reach the deep tissues, a fact not generally realised by those who are not practitioners of electrotherapeutics. The actions of interrupted currents, high-frequency and diathermy currents, of static electricity, and of X rays and radium are described.

In the second half of the book the author mentions the diseases and morbid conditions for which electrical treatment may be usefully employed. He briefly mentions the form of electrical treatment which, in his experience, is most likely to give good results. Some of the statements made regarding the mode of action of electricity will, no doubt, be criticised by those who are experienced in electrotherapeutics, but the author makes no undue claims for electrical treatment, and the diseases for which he recommends it are those for which it is used by most specialists in electrotherapy.

ANATOMIE DES MENSCHLICHEN GEHIRNS UND RÜCKENMARKS AUF MYELOGENETISCHER GRUNDLAGE.

By PAUL FLECHSIG. Band I. Leipzig: Verlag von Georg Thieme. 1920. With 25 plates and 8 figures in the text. Pp. 63. £1 5s.

It is now half a century since the veteran Leipzig professor made his first contribution to a subject with which his name will always be associated. First in this field of research, he is still the most distinguished exponent of a method the full significance of which has possibly been less appreciated as its novelty has worn off. Yet to-day Professor Flechsig gives us a recapitulation of the labours of a lifetime, in the form of a beautifully illustrated atlas, based on the examination of 29 selected brains of fetuses and adults, and compels us to consider afresh the meaning of the stages of cerebral and spinal myelination, and the intimate connexion between function and structure. He has shown how no less than 45 separate cortical areas can be recognised as developing their myelination in ordered sequence, and how projection and association systems can be distinguished. In the corpus callosum, too, myelination and function proceed *pari passu*. It is a fascinating study to follow the steps in the process as clearly indicated in the plates with which this atlas is lavishly furnished, from the upper third of the central gyri (Field No. 1) and the uncus (No. 2), to the anterior end of the second frontal (No. 45). To all who believe that knowledge of structure is indispensable to knowledge of function Professor Flechsig's work will make an irresistible appeal.

JOURNALS.

Journal of Industrial Hygiene. Issued monthly. London: Macmillan and Co., Ltd. 30s. a year; single copies, 4s.—The July issue of this Anglo-American journal contains three articles dealing with the subject of pulmonary tuberculosis. The first, by Dr. E. G. Birge and Dr. H. C. Havens, discusses the pearl button industry. This article is somewhat unconvincing, since the prevalence of respiratory disease is based on medical examination of small groups of workers employed at different processes. The authors seem to have expected an unusual incidence of phthisis among those exposed to dust, but did not find it; we know that as the dust in this industry does not contain free silica such an expectation was erroneous. When this fact is more widely recognised industrial medical officers will find the study of phthisis in occupations easier to comprehend; they will be further helped in their work by distinguishing between an excess of phthisis plus an excess of other respiratory diseases, an excess of phthisis alone, and an excess of other respiratory diseases alone. Each of the three depend on separate environmental factors.—Dr. J. S. Billings, in the second article, asks for more careful study of phthisis in industrial organisations, and puts forward a scheme for adoption. Advantage would certainly be gained by use of the simple plan advocated which presupposes medical supervision to eliminate from industrial concerns the tuberculous in their own interest and that of others, together with care and disposition of the tuberculous, so as to secure their return to work, or rehabilitation in other less strenuous occupations. As factory medical service develops action on these lines is bound to follow, and the result upon the prevalence of adult phthisis will be considerable.—The third article, by Sir T. Oliver, is a short résumé of knowledge concerning phthisis as a form of pneumoconiosis. Unfortunately this interesting article is too brief to deal adequately with the subject. The influences exerted by dust in predisposing to pulmonary tuberculosis in the case of silica dust, in inhibiting the disease in the case of coal dust, and in lowering general resistance, are well set out, and the information will be of value to a wide circle of readers.

Several important articles in recent issues are devoted to more general questions; of these, the best is one by Miss A. M. Anderson, Principal Lady Inspector of Factories, on Welfare in Factories and Workshops, which appeared in August. After pointing to the impetus, which almost amounted to a new creation, given to the welfare movement during the war, a sketch follows of the influences contributing to this end. In particular, credit is meted out to the activities of the Ministry of Munitions. The rapid advance was consolidated by the Welfare Section, Section 7 of the Police, Factories, &c. (Miscellaneous Provisions), Act, 1916, under which the Home Secretary has already made numerous orders applying to the provision of drinking water, seats, ambulance and first aid equipment, protective clothing, and rest rooms. Further action on these lines is to be anticipated in the near future; but provision of equipment without active support from the worker has been found inadequate. Every effort is being made to obtain this support through workshop committees and in other ways with encouraging results. The progress of welfare supervision through officers appointed in each factory for the purpose is described. This article is a refreshing account of the sudden rise of a new influence for the betterment of health, mental and physical.

An article which may with advantage be considered in relation to the last named appeared in September by Dr. C. Scheffel dealing with the mental hygiene of industrial workers. Dr. Scheffel clearly appreciates the immense future before medical sociology. He writes:—

"Industrial mass-mind not kept clean, busy, and amused will soon decay, and as the result of this decay discontent, strikes, and riots are bred. Few large industrial plants which have provided active welfare movements based upon a careful study of the psychology of employees have had to confront serious labour difficulties in the present acknowledged industrial turmoil. Could our profession do greater work to-day than by reducing labour unrest through establishing health among workers?"

"Mental monotonous to the extent of allowing habits of introspection to form is one of the greatest bane to industrial workers. Habits of introspection are as bad for industrial workers to indulge in as they are for hypochondriacs. These lines of mental activity when indulged in by the mass-mind lead toward the road of industrial unrest."

The remedies are physical exercise, mental recreation, and a good night's sleep. Statistics referring to 16,400 workers are quoted to establish that among those taking regular gymnastic exercise the time lost from illness is some 30 per cent. less than among the others. Organised mental recreation for bringing into activity those parts of the mind which are inactive during work is advocated to provide constructive lines of thought instead of day-dreaming during office or factory hours. Investigation of housing conditions and personal habits are suggested to secure that workers

take adequate sleep under hygienic surroundings. Action on such lines will result in "diminished labour turnover, less industrial unrest, and increased production, to the great benefit of the industrial worker himself and of society in general."

We are only noticing articles from this journal which contribute to knowledge; a number—too large a number, we venture to think—of short articles are published which are sermonettes. The editorial pencil might with advantage eliminate many of these and so obtain room for longer and more scientific papers. The abstracts of current literature continue to be well done and form a special feature of the journal.

School Health News.—This circular for New York teachers deals, in the September issue, chiefly with vaccination, which is strictly enforced in New York schools. The last page describes the daily morning hygiene inspection by the teacher, a feature of the American schools which might advantageously be copied here.

Maternity and Child Welfare. November, 1920.—To the November number of this monthly journal for workers among mothers and children Mr. H. O. Stutchbury contributes a review of the infant welfare work of the Ministry of Health, of which he is Assistant Secretary.—Miss Jessie March, in an article entitled "Training for Parenthood," considers the objections to sex teaching in schools, and outlines a scheme for educating adolescents to a high ideal of their duty to the next generation.—A study of conditions of life in the Outer Hebrides, illustrated by photographs of "Black Houses," discusses the heavy death-rate of children from 1 to 5 and the high tuberculosis incidence in these regions, and attributes the surprisingly low infantile mortality to breast-feeding.—In an account of the life and work of Nathan Strauss—one of a series of child welfare biographies—statistics showing the merits of pasteurisation as "the next best thing to clean milk" are given, also a brief description of the theory and practice of this process. Other pages are devoted to news and notes on current work and events bearing on child welfare, including a list of hospitals and homes for young children throughout the country.

Tropical Diseases Bulletin. Vol. XVI, No. 4.—We have received the Sanitation Number of this journal, issued under the direction of the Honorary Managing Committee of the Tropical Diseases Bureau. We are informed that after the December issue the Sanitation Numbers will be published as "Sanitation Supplements" of the Bulletin and will be obtainable from the Bureau at a subscription price of 7s. 6d. per annum post free, and three of these supplements will be published during the year, together forming an independent volume of some 150 to 200 pages, with index. In the present number are reviewed the following sanitary questions amongst other things: malaria prevention, disposal of human excreta in the tropics, fly-proof latrines, sanitary work in Mesopotamia, hospital garbage disposal, certified milk, and water and sewage purification. In regard to bottled certified milk (Minnesota) the presence of *Drosophila* has been detected. The pupæ of this fly develop within a week of the deposition of the eggs and they appear to occur in the bottles containing a little sour milk in the houses of customers or in restaurants. This implies a neglect of hygienic principles. The address of the Tropical Diseases Bureau is 23, Endsleigh-gardens, London, N.W.

Ophthalmological Society of Egypt Bulletin of 1920.—Since the grant of a large sum of money by Sir Ernest Cassel for the amelioration of eye disease in Egypt the growth of ophthalmology in that country has been phenomenal. There is now a total of 18 ophthalmic hospitals, with a staff of 32 ophthalmic surgeons, and the Ophthalmological Society of Egypt has nearly a hundred members scattered through the country. Of the papers contained in this bulletin four deal with trachoma and pannus and two with gonococcal conjunctivitis and ophthalmia neonatorum. The latter is apparently a rare disease in Egypt, one suggested cause for this being that it is not the custom to bath the child until about the eighth day; thus one risk, the splashing of the eyes with contaminated water, is avoided. Parenchymatous keratitis, we learn in another paper, is also a rare disease, a circumstance which, since syphilis is not uncommon, is difficult to understand. A communication, illustrated by plates, describes a case of the rare disease called monilethrix, affecting the eyebrows and eyelashes. One member records two cases of conservative treatment of foreign bodies in the globe, though as in one case no X ray plate was taken and in the other the skigram showed that the foreign body had penetrated through into the orbit his paper is not very convincing. Another member, in a paper on natural methods of healing, advocates the more general use of sea-water as an eye-wash. We congratulate the society on their vigour, which does credit on the one hand to Professor E. C. Fischer and Dr. A. F. MacCallan, the two English ophthalmic surgeons who have found their life-work in the country, and on the other to their Egyptian pupils and coadjutors.

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B. pneumoniae	...	50 millions
B. septus	...	50 millions
Staphylococcus	...	300 millions

In consequence of the large number of carriers of influenza, bronchial and "cold" organisms during the present season, it has been found that full doses of prophylactic vaccines occasionally precipitate acute attacks of disease. In order to obviate such attacks, it is recommended that the initial doses be reduced, and that a series of three doses should in every case be administered. For that purpose sets of three graduated doses are now supplied, in 1 c.c. ampoules, respectively containing one quarter, one half and the full number of micro-organisms as stated above for the several vaccines. These doses are applicable for adults and young persons over 16 years of age. Younger children should be given half the contents of the ampoule in each case. Prophylactic doses should be given at intervals of ten days; the smaller doses for treatment at intervals of 24 to 48 hours, and larger doses every four or five days.

NOTE.—As it is found that many cases of "cold" are this year apparently pneumococcal in origin, Mixed Anti-Influenza Vaccine (S.M.H.), in graduated doses, may also be used for prophylactic purposes.

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within the area and to maintain the same as a hospital." The amendment, he explained, was in fulfilment of an explicit pledge given at the last General Election in connexion with the transformation of the Poor-law, and he pointed out that it was impossible for a Ministry of Health to stand by and see the waste of accommodation in Poor-law institutions while there were multitudes of people who were suffering from lack of it. The amendment was accepted. The course taken by Dr. ADDISON was confidently expected by most people, as this Clause of the Bill had been felt to add to the difficulties of voluntary hospitals in an hour of sore trial, and to open the door to municipal extravagance. The wise course in the circumstances was obviously to obtain more accurate information than had yet been secured.

The Outlook in Neurology.

BEFORE the war lack of coördination between neurologist, psychiatrist, and psychologist was a conspicuous failing in the practice of medicine, notwithstanding the occasional expression of sanguine hopes that each would somehow in time learn more of the others' spheres of activity. So completely, however, has the situation been metamorphosed by the change of viewpoint begotten of war experience and the augmentation of knowledge owning a similar origin, that it is scarcely an exaggeration to say no one can now tell where one sphere ends and another begins. The psychoneuroses in general are being handled by one or other of the three specialists indiscriminately, and none appears to feel he is encroaching on another's preserves. The neurologist may claim priority and plead justification for his treatment of functional nerve disease because of his acquaintance with the organic side and his presumed greater certainty of avoiding diagnostic mistakes; the alienist, too, may from his knowledge of organic dementias reasonably assert his right to interest himself in the earliest manifestations of disorder of mind; and the clinical psychologist or psychotherapist, who is neither a neurologist nor a psychiatrist in the time-honoured sense of these terms, seems not to set any limit to the types of case with which he is prepared to deal, for has not the patient even with chronic structural nervous disease a mind to react on the body? A happy recognition of the new outlook is afforded by the fact that this year it is a neurologist that presides over the Psychiatric Section of the Royal Society of Medicine. Dr. FARQUHAR BUZZARD in his address which we publish in our present issue alludes to his position as a symbol of cordial relationship.

What is to be the outcome of this strong set of the current in the direction of the psychogenic explanation of much nervous disease? Surely the movement is but a part of that wider trend towards ætiological research in the successful prosecution of which lies the greatest hope for the future of medicine. The days of mere morphological study are passing; we are no longer satisfied with the end-results of disease, but seek light on its beginnings. Important as must always remain the clinico-pathological method, the neurologist will be well advised to recognise its limitations; the morphological pathology of disseminated sclerosis is known down to the slightest affection of nerve fibre, yet the clue to the mystery of that disease, in the form, possibly,

of a spirochæte, is being won by experimental methods. Nor is the situation different in regard to functional nervous disease, such as hysteria: schematic descriptions of symptomatology are giving way to pathogenic investigation in the realm of mind. It matters little, perhaps, that finality has not been reached. In his most recent publication Dr. W. H. R. RIVERS adumbrates an ætiological theory of hysteria rather different from those hitherto holding the field. He argues from his experiences of the neuroses of warfare that the condition is due primarily to the activity of a danger-instinct; otherwise expressed, to the coming into action of an instinct whose primary function is protection from danger. Whether such a view will explain the hysteria of ordinary civilian cases remains to be seen, and there are obvious criticisms to be passed on such a theory; but for the moment we are less concerned with criticism than with the fact that the neurologist is merely marking time if he categorises hysterical symptoms *ad infinitum* to the exclusion of any ætiological investigation. It is as essential for him to find the cause of hysteria as it has been to run the meningococcus to earth, or the *Spirochæta pallida*, or as it is to discover the virus of encephalitis lethargica. Neurology, therefore, will fall behind in the race if its exponents leave psychogenesis to the psychologist and the psychiatrist; gross will be the anomaly if the patient with "nerves"—an expression not likely to fall into desuetude—is not to be treated by the neurologist.

It is no answer to these impelling considerations that the present day state of clinical psychology and psychotherapy is more or less chaotic. If the output in article, monograph, and book is characterised by conflict of opinion as much as by its quantity we have at the least signs of vigorous life. The day is gone, surely, when the critic of psychoanalysis could not see the import of the movement for pre-occupation with its apparent fallacies; more than ten years ago we deprecated any premature judgment on the subject and pleaded for unbiased discussion. We think it may fairly be said that the psychological mechanisms uncovered by FREUD and his school are to-day largely accepted by all who are competent to judge; Dr. H. YELLOWS' recent article in our columns should go far towards removing prejudice, based, as it often is, on simple misconception and misunderstanding. The psychological causation of certain diseased conditions has been established. If the specialist of the nervous system does not take up the torch lighting the way into these realms he may be compelled to give way to those who will. The significance of the appeal made by some exponents of manipulative surgery is that it reveals a hiatus in our medical curriculum, and with equal truth the public has not always found what it seeks in the ranks of the medical profession. Better far to ignore rivalry of psychotherapeutic theories and to concentrate on psychotherapeutic facts. No neurological unit, clinic, or school is complete which does not take cognisance of psychical factors in the ætiology of some varieties of nervous disease, and fails to instruct the student in every aspect of disease-manifestations. It is immaterial what subdivision, if any, is made in the whole field of nervous and mental disorder as long as we attain the essential ends of neuro-psychological activity—amelioration or cure.

THE LANCET.

LONDON: SATURDAY, DECEMBER 4, 1920.

The Ministry of Health Bill.

THE Ministry of Health (Miscellaneous Provisions) Bill, or, to be exact, the highly important part of the measure which remained after the dropping of 14 clauses, has been under discussion by a Standing Committee of the House of Commons during the week. The more directly medical exchanges of opinion have occurred, in accordance with the easy forecast made in these columns three weeks ago, around Clause 10, which dealt with the treatment of incipient mental disease, and Clause 11, which recognised the placing of general hospitals and similar institutions upon the rates. The spirit of the discussion has throughout been excellent, because a real approach has been made to a proper understanding between the representatives of the public and representatives of medical views. The medical profession exists for the good of the public; the measure of its value is the measure of good which it does for the public; and the amount of freedom from control, as well as the amount of money placed at its disposal, must be determined, as far as foresight and circumstances permit, by the need for ensuring that medical service shall be administered by competent persons in an environment according with their responsibilities. We are not ashamed to set down or repeat these truisms, because so much of the acrimonious criticism which the omnibus measure of the Ministry of Health has produced could not have received attention if the position had been clear to the speakers and writers. The medical profession is unjustly suspicious of State supervision, and the public at large is unjustly suspicious of the purity of medical objects. The one side sees everywhere multiplication of forms and a labyrinth of tape, while the other side appears to regard the medical practitioner, even when he is credited with being properly informed, as a venal or arrogant person. In the Standing Committee of the House of Commons most of this rubbish disappeared from the minds and the words of legislators.

Clause 10 emerged from close scrutiny with little alteration in detail and none in principle. The Standing Committee recognised that at the present moment there is no proper provision for cases of incipient mental disease. We have not the machinery by which these cases can be diagnosed in time, or under which preventive measures can be taken before the affected subjects fall into what may be incurable conditions. To remedy this state of affairs the Clause proposed to permit, with proper safeguards, that persons suffering from recent mental disorder, who have not been either certified as lunatics or the subject of an order under the Mental Deficiency Act, shall be received into institutions, managed by approved hosts, for the study

and remedy of their plight. The Clause originally ensured that charge should be taken of such persons in the approved institution for a period not exceeding six months, or such longer period, "not exceeding in all 12 months, as may be directed by the Minister of Health, and whether for payment or not"; but an amendment was accepted to limit the period of reception to six months, at the end of which every case is to be reviewed. A further amendment to leave out the words "whether for payment or not" was eventually withdrawn, after a warm acknowledgment by some of the speakers. Dr. ADDISON among them, of the virtues of the voluntary hospital system. It was felt, however, by the Standing Committee that a large class of patients would not be able to obtain the benefits aimed at by the Clause unless provision was made for their support and treatment during the period of investigation. As the Minister of Health said, it is necessary to deal with actualities and not with ideas. The Ministry of Pensions will make the payments in respect to ex-Service men still under their care—and it is the large number of shell-shock cases which has brought the question of incipient lunacy so prominently before the public eye; but Colonel FREMANTLE called proper attention to the fact that at the present time, while the middle and upper-middle classes can obtain attention in their early mental troubles, such help is still denied for cases like those which the Maudsley Hospital has been founded to meet. Throughout the debate the position of the medical profession in respect of the incipient lunatic was properly recognised, and how delicate that position may be is the subject of more detailed notice below.

When Clause 11 was reached, which seeks to give power to county councils to "supply and maintain hospitals, to contribute to any voluntary hospitals within their area, to undertake maintenance of Poor-law hospitals and institutions, and to establish and maintain or contribute towards the ambulance service," Earl WINTERTON moved an amendment postponing the Clause, urging the Minister of Health not to prejudice the voluntary system at a critical time and when there was a strong feeling that the country did not enjoy to the full the benefits that might be obtained under that system, because of disorderly and ineffective proceedings in its administration. Dr. ADDISON acknowledged that the amendment represented the public view, while he added that strong representations had been made to him in a similar sense from influential quarters. Wanting personally above all things to sustain the voluntary system, he asked the Committee to agree to the deletion from the Clause that part which empowered county councils to contribute out of the rates to voluntary hospitals, and stated that he would appoint forthwith a Committee "to inquire into and report upon the financial position of the voluntary hospitals throughout the country and make recommendations." He said that this Committee would consist of five members, none of them being medical men or connected with hospital arrangements in any way, and he hoped to have from so small and impartial a body expeditious advice, suggesting that their report would be forthcoming in a few months. He proposed, further, an amendment which, while deleting the words "empowering county councils to contribute to any voluntary hospitals within their area, added an authorisation for them "to acquire, by agreement with any Poor-law authority, any Poor-law hospital or infirmary belonging to that authority

August 1st, 1903, and emphasises the extreme difficulty of accurate diagnosis in mild aberrant types of variola. Such had been experienced in somewhat similar outbreaks occurring in 1902 in Trinidad, and at Cambridge in 1903. To this variation, resembling the mitigated form of small-pox known as *amaas*, or *kashr milk-pox*, in South Africa, the name *alastrim*, derived from Brazil, has been given. The cases occurring in Suffolk and Norfolk numbered 31, and covered a period of over two months from the latter part of May to August, 1919. The outbreak was traced to a trawler skipper who had returned home on leave suffering from a mild form of rash after service in the Mediterranean area. Following on his stay with relatives infection spread to members of the households visited and from them to friends and acquaintances living in the neighbourhood. The connexion between some of the cases was indirect and could only be elicited after a very close inquiry, but was eventually clearly established. In one instance the only vehicle of infection proved to be a few copper coins which had been passed from one to another infecting a third. At the onset of the outbreak the diagnosis was most obscure; the symptoms—vomiting and occasionally headache—suggested gastritis, and were attributed by patients to "biliousness" and being "out of sorts." In some cases vague muscle and bone pains were present. This indefinite illness was succeeded in three or four days by a red papular eruption resembling acne, but later described as "much more like small-pox, or possibly chicken-pox," and appearing in successive crops chiefly on the abdomen and chest, later spreading to the extremities and face. Simultaneously with the eruption there was striking amelioration of the general symptoms and temperature, sufficient to enable some of the victims to get up and return to work. The obvious infectivity of the condition and its resemblance in some respects to modified variola, although by no means typical of the disease itself, justified the removal of those affected to the small-pox hospital.

The very interesting details of the spread of infection and distribution of cases among the towns or villages of Lowestoft, Beccles, and Bungay, in Suffolk, and Gillingham and Gildeston in Norfolk, are followed by a summary of the clinical course of the disease, showing the points at variance with the features of typical variola and varicella. The incubation period ranged between 12 and 14 days. The vague and ill-defined initial symptoms were at times attended by high temperature of 103° or 104° F., and in a few cases at, or shortly after, onset, by a prodromal or more or less generalised urticarial or measles-like rash. The actual eruption developing first as seed-like papules, passed, in some instances in a succession of definite crops, into a vesicular and pustular stage without rise of temperature and gradually spread over the whole surface of the body, involving the palms of the hand and soles of the feet. Confluence was not uncommon on the face, but seldom occurred on the trunk or limbs. Drying up of the pustules commenced about the ninth day and was complete by the fourteenth day. Scars are stated to disappear in a few weeks. The appearance and structure of the vesicles did not conform to the description of those usually met with in ordinary small-pox, being dome-shaped, not umbilicated or septate, and not collapsing when pricked as in chicken-pox. The difficulty of diagnosis was considerable, for the average intensity of the disease was appreciably less than in even a mild outbreak of small-pox. The site of appearance of the eruption and its development in a series of crops resembled chicken-pox rather than small-pox, as also did the general absence of any secondary rise of temperature in the pustular stage. It was also striking that the effect of vaccination was not so definitely protective as in ordinary small-pox, and in one instance it was possible to vaccinate a patient with success during the period of convalescence. The mortality from the disease is low, usually no higher than 0.5 to 1 per cent. The majority of the 31 cases in the Norfolk outbreak occurred in young adults; only 4 were at any time seriously ill; of these, 1 at first seemed unlikely to survive, but

eventually recovered. One fatality occurred in the case of a puny unvaccinated baby of 11 months. The disease, though very infectious to human beings, has not proved communicable to animals.

Comparable as this outbreak undoubtedly was to the disease known as *alastrim*, which has been thoroughly studied in Brazil, and to the anomalous varioloid disease at Cambridge in 1903 and in Trinidad in 1902, and to *amaas* in South Africa, one can but conclude that these types are in all probability to be regarded as mild aberrant forms of small-pox rather than as providing evidence of the existence of a distinct varioloid disease. It is conceivable that such unclassified varieties of the parent type may be analogous to the different aspects presented by certain other diseases of known parasitic origin, such, for example, as the malarial fevers, of which three forms exist due to separate species of plasmodia. On the other hand, as with the eruptive manifestations of syphilis, which may be instanced as yielding very variable appearances of one and the same infection, so, too, it may not prove wide of the mark to attribute to small-pox a similarly wide variation in type sufficient to include the forms of disease designated by such names as *alastrim* and *amaas*. Just as the Western strain of small-pox is known to be far less virulent than the Eastern, so in the present state of our knowledge the still milder but aberrant forms may be taken to represent a further decline in virulence of the parent disease. A point of great interest arises as to whether, under certain conditions of low racial immunity, or in the presence of population unprotected by vaccination, or whose vitality has been diminished by starvation and bad hygiene, the milder types of small-pox may not regain their lost virulence and revert to the severe form of the disease. In view of this possibility and with a growing number of unvaccinated children and young adults it is incumbent that the occurrence of such mild outbreaks as Dr. Moulton Copeman has reported on should be met with every precaution and dealt with as genuine small-pox.

FATIGUE AND OUTPUT IN THE BOOT INDUSTRY.

ONE of the most interesting reports yet published by the Industrial Fatigue Research Board is that dealing with the boot and shoe industry,¹ which is intended to be introductory to a series dealing with this trade. It opens with an historical outline, in which is traced the connexion between the oak forests of Northamptonshire and the location of bootmaking dependent upon the use of oak gall for tanning leather; the way in which every succeeding war since the Irish expedition of 1642 has caused a boom in the industry; and the transference, even yet not complete, of bootmaking from being a home industry to the factory, a transference necessitated by the introduction of machinery. We congratulate the author, Mr. J. Loveday, on this sketch. It is followed by a short description of the industry and the processes as carried out to-day. Most persons will learn with surprise that a boot in the course of manufacture may pass through as many as 120 processes. Only the most important of the processes are described and illustrated in the report; but sufficient is stated to enable the reader to grasp the general progress from raw material to the finished boot.

The third section of the report is devoted to consideration of some output data. The records given suggest that the practice now being adopted of ceasing work on Friday and leaving Saturday free is justified by the low hourly output obtained on Saturday, while "overhead" charges remain the same. Far more interesting, however, are nine diagrams which follow, showing the daily output of individual members of working groups, and the conclusions based upon them.

Where two or more records are available for the same operation, the more highly skilled operative has a more regular graph, and shows less inclination to fall off towards the end of the week than the operative with a lower average output. Where a workman is comparatively unskilled or ill-suited to his job, his output curve tends to be irregular or

¹ Preliminary Notes on the Boot and Shoe Industry. Report No. 10, Industrial Fatigue Research Board, 1920. Pp. 22. Printed by H.M. Stationery Office.

Ex-Service Mental Patients.

ALLEGATIONS against the treatment of individuals or groups of individuals in mental hospitals are not uncommon, and rare is the institution whose authorities have not at one time or another had to face an inquiry, public or private, on these grounds. There are still a number of persons who speak and think of mental hospitals as asylums for the insane, of patients as inmates, and of nurses as keepers. The adoption of modern nomenclature has lagged far behind the adoption of modern methods of treatment. The popular conception of life in these institutions is not a true one. It is not surprising that this should be so, as the borderline cases who go in and out are almost necessarily unhappy and dissatisfied, while the public rarely comes into contact with the confirmed paranoiac, the dement or the general paralytic, who are for the most part contented and happy in their surroundings. The conclusions of the Commissioners appointed to investigate certain charges made against the treatment of ex-Service men in the Prestwich Asylum were to be expected. Sir MARRIOTT COOKE and Mr. A. H. TREVOR, Commissioners to the Board of Control, conducted the investigation. Dr. CUNYNOHAM BROWN, Deputy Director-General of Medical Services, Ministry of Pensions, accompanying the Commissioners and joining in their examination of patients and inquiries. They find that kindness, consideration, and proper medical attention are given to these patients by the medical and nursing staff; that there is no improper or unnecessary detention; that reasonable facilities are offered them to receive visits from their friends; that they have frequent opportunities to bring any grievances to the notice of the visiting committee; and that the patients' clothing and general appearance are well cared for. The only recommendations made are that the dietary, though good and sufficient, should be given more variety, and that facilities should be offered to representatives of the three joint associations (Comrades of the Great War, National Federation of Discharged and Demobilised Sailors and Soldiers, and the National Association of Discharged Sailors and Soldiers) periodically to visit the asylum and see the Service patients. This recommendation is of importance, for its adoption by mental hospitals throughout the country would be followed by a better understanding between friends of patients within and without these hospitals.

A NOTE will be found in the proceedings at the recent session of the General Medical Council, which requires comment in the interests of justice. Dr. C. E. DOLLING, a young Australian, was convicted at Westminster at the beginning of this year of a disgusting offence and fined for it. He was undefended by counsel, and did not understand what he was being charged with. On the case being brought before the General Medical Council Dr. DOLLING made a clear statement of the circumstances, bringing also unimpeachable testimony to the cleanness of his moral character. When the sort of evidence which had been given against him was realised by the Council, that body had no hesitation in retaining Dr. DOLLING's name upon the Medical Register. The original conviction reflects no credit at all upon the magistrate who heard the case, and we take this opportunity of congratulating Dr. DOLLING upon the result of an impartial inquiry by the disciplinary body of his profession.

Annotations.

"No gold mine."

THE DIFFICULTIES OF A UNIFIED TERMINOLOGY.

WE mentioned in a leading article in THE LANCET of Nov. 20th (p. 1060) that the classification of diseases mainly interests the writers of text-books and medical statisticians, and in like manner it might be said that the problems of the nomenclature of diseases have few attractions for the practical man, who, indeed, is apt to be restive about verbal changes that do not materially affect his work. But as Dr. Guillermo Arbulú pointed out in his letter in our last issue, practical medicine might be benefited by the adoption, or rather the extension, of the use of particular terminations for the names of diseases so as to signify special conditions. Thus the termination *-osis*, already familiar in tuberculosis and furunculosis, should be employed for all bacterial infections—for example, gonococcosis; and the termination *-iasis*, as in trichiniasis and trypanosomiasis, should be used for the distinction of diseases caused by other parasites—for example, paludiasis (malaria) and acariasis. His letter was accompanied by a printed memorandum presented to the Commission Internationale Chargée de la Révision des Nomenclatures Nologiques (Nomenclatures Bertrillon) by his colleague Dr. H. Jaworski and himself, as Peruvian delegates, in which the suggestions outlined in his letter are further illustrated. This inflammation of the kidney certainly due to bacterie would be called nephrosis, a term already employed but not with this limitation, whereas inflammation due to poisons, the example given being alcohol, would still be termed nephritis; on somewhat similar lines pericarditis and pericardiosis, encephalitis and encephalosis, bronchitis and bronchosis, appear in the memorandum, for purulent infection and septicaemia the words pyohaemosis and septicaemosis are substituted, these recalling the term pyosis already advocated in this sense. It is also pointed out that this scheme of terminations with a special significance provides for advances in knowledge; thus if cancer were found to be due to a bacterial cause the word carcinososis might be utilised. This, however, recalls the use of sarcomatosis, carcinomatosis, and other terms as implying generalised new growth, and, indeed, the termination *-osis* is employed with such a wide significance, and is so firmly established, as is seen in pyrosis, ankylosis, cirrhosis, infosis, audrosis, and hydronephrosis, that the attempt to confine its use to proved bacterial infections would probably meet with failure. Much the same criticism may be applied, though not perhaps with the same force, to the use of the affix *-iasis* to the names of parasitic infections; for the words lithiasis, hypochondriasis and others refer to conditions unassociated with parasitic invasion. Some parasitic diseases, such as the protozoan infections spirochaetosis and spirillosis, have already acquired the termination *-osis*, and it may incidentally be pointed out that syphilosis, proposed by Dr. Arbulú and Dr. Jaworski, for infection with *Treponema pallidum*, should be altered to syphiliasis. While admitting the attraction of the suggested change and admiring the good intention underlying the attempt, the difficulties in carrying this modification through are such as to render an attitude of conservative inactivity in this respect the wisest course.

THE RELATIONSHIP OF SMALL-POX AND ALASTRIM.

THE concise and instructive account contained in Dr. S. Monckton Copeman's report¹ on the investigation of certain outbreaks of anomalous varioloid disease resembling small-pox, which occurred in Norfolk in the summer of 1919, bears out the correctness of the statement quoted from THE LANCET of

¹ Appendix II., Report of the Chief Medical Officer, Ministry of Health, 1919-20.

examiner must always retain an open mind. The medical record card system of the Ministry of Pensions is an attempt to safeguard the interests of the pensioner and to economise the time of medical officers, and in so far as it does this it merits the active interest and participation of the consultant staffs of hospitals.

EXTRA-RETINAL VISION.

THERE is nothing inherently impossible in the conception of a race of human pigmies 5 or 6 inches high such as Swift imagined when he wrote the story of Gulliver's journey to Lilliput, or of a race of giants such as the inhabitants of Brobdingnag. Neither is there anything inherently absurd in the conception of a human being in possession of other organs of vision besides his two eyes, or indeed of having these extra-visual organs scattered over the entire surface of his body. When, however, we read a book which purports to prove that such is the fact we naturally regard it as a *jeu d'esprit* conceived in the same spirit as that which inspired the author of "Gulliver's Travels" 200 years ago. Mons. Louis Farigoule, a supernumerary professor of the University of Paris, complains that modern physiology lags far behind the discoveries of minute anatomy. Microscopical structures are known, he says, but their functions are only guessed at, and, so far, the assistance which modern psychology might bring to their interpretation has been ignored.

Starting from phenomena observed in subjects in a state of somnambulism, he observes that certain of these subjects, when blindfolded, behave as if they perceived objects, persons, even written characters. Psychologically, the somnambulist is in a condition of consciousness different from that associated with ordinary life, but analogous to that with which the modern scientific world is more or less familiar as the result of hypnotic suggestion. Mons. Farigoule therefore hypnotised a subject and, having blindfolded him, suggested that he could still see the title of a newspaper. The result was successful, but the subject became so fatigued that he refused to have any more experiments made on him. Nevertheless, five other subjects were obtained—the first-comers, and in no way selected as being easily suggestible, and as the result of five series of experiments conducted on them the results obtained in the first case were confirmed and amplified. The next step was for Mons. Farigoule to experiment on himself. By dint of great efforts and at the cost of considerable exercise of patience he at length succeeded in eliciting the same phenomena subjectively that he had previously found objectively in his hypnotised subjects. Having elicited them he was able to analyse and describe them in a far more exact manner than had been possible in the case of experiments in other people. The obvious criticism on all this is that either the whole thing is a romance, or else the author is the subject of self-suggestion and is unconsciously deceiving not only his readers but himself. The book is addressed not to the public but to the scientific world, and its plausibility is greatly increased by the explanations of the phenomena suggested.

There are, as is well known, many different varieties of nerve-endings in the skin such as Pacinian corpuscles, end-bulbs, &c., all of which have been minutely described by anatomists. In recent times modern methods of histology have disclosed yet others—namely, a certain form of nerve-ending in the superficial layer of the dermis between the papillae, which Ranvier compared to the branching of Ivy and called "hederiform" bodies, and another form which has been described as occurring in the epidermis of the pig's snout—microscopic expansions interposed between the cells and termed "menisci." The argument is that it is an unwarrantable assumption that all these various forms of nerve-ending have to do with the sense of touch, and that it is just as likely that some of them are connected with the sense of vision. The author goes further and pictures these

"menisci" and "hederiform bodies" each as a microscopic "ocellus," and each complete in itself with a refracting body, an ocellary retina, and a nerve fibre, but collected into groups in certain parts of the body, each group constituting something very much like a compound eye. The visual impulses so originated are conveyed to the central nervous system in a way similar to visual impulses from the eye, but whether they reach the occipital lobe or are arrested on some lower level of the central nervous system is apparently as yet not determined. Why, then, does not the ordinary person see when he is blindfolded, and why do we not all of us have a faculty not only of diplopia but of multiple vision? The suggested answer to these questions is on psychological grounds, and an analogy is made with the well-known phenomenon of the suppression of the image in a squinting eye. The whole thesis is worked out with considerable skill, and we can commend the book to our readers, if on no other grounds, as an interesting psycho-physiological puzzle. If taken seriously it would open a way for the blind to see by the education of what the author professes to believe is a latent faculty, and he tells us that he has already had some success in this connexion and means to accomplish more. It is in the interests of the blind that we would point out that to raise hopes in them which are doomed to disappointment is anything but a kindness.

TANK EXHAUSTION.

ACCORDING to Dr. L. R. Broster,¹ formerly D.A.D.M.S. Tank Corps, tank exhaustion is a familiar syndrome. After running for from three to six hours in a closed tank, the crews apparently suffer from excessive heat, dryness, ventilation, combined with excessive heat, dryness, and the presence of CO; they develop headache, giddiness, dyspnoea, palpitation and vomiting, mental confusion, and sometimes unconsciousness. The atmosphere within the tank becomes very hot and dry; readings of 120° dry, and 86° wet bulb are quoted. Naturally the men's temperature also rises; observations of 100.4° and 100.8° F. are recorded. A little carbon monoxide is found in the air of tanks, also petrol fumes. Fans are supplied and used, but openings are necessarily small to keep out bullets and splinters. Unless the tank be directly hit by shell, the wounds of crews are usually slight, but in action, with all openings closed, exhaustion comes on early, and after a day's fighting the men require two days' rest. Dr. Broster suggests that a tank might act as a protected advanced dressing station; one was used at Cambrai to bring back 16 wounded, and a tank ambulance to carry six stretchers was under construction when the armistice was signed.

QUININE AND THE PREVENTION OF MALARIA.

THE value of quinine as a prophylactic against malaria is a subject on which there has always been considerable divergence of opinion among experts, nor have the experiences of the late war led to any definite conclusions, since the difficulties and inconveniences of the systematic routine administration of quinine to every healthy member of a large body of troops were found to be such that the method, of uncertain benefit, was largely abandoned in favour of other more feasible measures of protection. Much confusion has arisen from the failure to distinguish between the essentially different problems of the protection of the healthy individual from malaria, and the control of relapses in those who have become infected with the disease. Quinine is of established value in diminishing the number and severity of relapses, if taken in adequate quantity and over a long period, although, unfortunately, it seldom leads to complete cure in the sense that no further relapses occur on discontinuance of the treatment. On the other hand, the belief is widespread among those who reside in districts where malaria is rife that quinine can be relied on as affording adequate protection against the ill-effects of bites by

¹ La Vision Extra-Rétinienne et le Sens Paroptique. By Louis Farigoule. Paris: Office of the Nouvelle Revue Française.

to drop as the week passes, whereas the skilled operative, employed on congenial work, shows a curve approaching more nearly to the ideal of a rise throughout the week.

The importance of this conclusion to methods of work is considerable, for it suggests that the most rapid worker is the steady worker, and not the one who proceeds by irregular spurts; it confirms what might have been anticipated from athletics, where the best long-distance runners cover lap after lap at the same rapid rate, in contrast to the performance of less efficient runners who vary their pace. The last section of the report records a short experiment with rest-pauses, in which two of a team of three women operatives employed in the press-room worked 40 minutes, while one rested 20 minutes and then replaced one of the workers. Thus each operative was only actively employed for about 30 hours a week instead of 46. A considerable increase of output was obtained, the increase resulting more from the comparatively unskilled and less robust workers, who would naturally be more liable to fatigue, than from those whose output was high before the rest-pauses were instituted. Although, the report concludes, the duration of the experiment was not very long, it covered a sufficient period of time to render the results valuable and suggestive. It proved to the advantage both of employers and employed. The employers increased the output per machine by roughly 50 per cent., and if one girl of a team was absent from any cause the press could still be worked; the number of accidents was sensibly reduced, and the employees were contented, and said that they were less tired and in better health.

"PSYCHOLOGY AND PSYCHOTHERAPY."

In his inaugural address, with this title, to the Cardiff Medical Students' Club Scientific Society on Nov. 9th, Dr. William Brown, Reader in Psychology at King's College, London, laid especial stress upon the following points:—

(1) There should be no divorce between psychotherapy, with its psychological methods and principles, and neurology. All who study the subject should be trained in neurology. To say that it deals with "functional nervous disease" is misleading. All nervous diseases are functional in their manifestations. And yet to say that any disturbance of nervous function over and above that which is the direct outcome of organic change, if demonstrable organic change there be, is due to suggestion, is a most inadequate explanation, and in many cases is demonstrably wrong.

(2) Psychotherapy is applicable mainly to the so-called psychoneuroses, in which the factors of causation and cure are mainly, though not always exclusively, psychological in nature. Suggestion is, indeed, one such factor, of great prevalence and potency, but there are many others. The question of diagnosis is of the utmost importance to success in treatment. The psychoneuroses comprise neurasthenia, hysteria (of conversion and anxiety types), compulsive neurosis (obsessions), and also hypochondria and mythomania. The causation and therapeutic requirements of these different diseases are themselves different. Much confusion, for example, is caused by identifying hypochondria with hysteria, and again by putting anxiety hysteria and compulsive neurosis into one class and calling them psychasthenia.

(3) Hysteria of the so-called conversion type corresponds to a crude dissociation of the psychophysical functions, brought about by mental conflict and repression, or by sudden shock. A large proportion of the shell-shock cases of the war corresponded to this type. They were easily hypnotised. Indeed, the greater the degree of dissociation the more hypnotisable were the cases. This is in harmony with Charcot's view that hypnosis is an artificial hysteria. It is most important to realise this, although many scientists, confusing hypnosis with suggestion, still deny it. Hypnosis is useful in a small percentage of cases, to clear up amnesia and work off bottled-up emotion (abreaction or psychocatharsis), but, like an anaesthetic, is in itself not beneficial and may be harmful. Repeated hypnosis of the same patient is undoubtedly bad. Dr. Brown sketched his own theory of shell-shock hysteria in terms of a double dissociation, and showed how the practically proved beneficial effect of abreaction of repressed fear could be theoretically justified.

(4) Many of the mental mechanisms discovered by Freud are verifiable, and psycho-analysis as a method ("free" association) is of the greatest value, but the general theory of psycho-analysis, especially that part referring to infantile

sexuality, is of more than doubtful truth. The phenomenon of "transference" that occurs in the course of psycho-analysis is akin to suggestion, and is an essential element in cure.

(5) Another important factor of psychotherapy is the self-knowledge that comes from psychological analysis, and discussion of the earlier memories, strivings, hopes, fears, &c., that led up to the outbreak of symptoms. This is an intellectual factor, but one which takes full account of the emotional substratum of all mental illness. It is not identical with psycho-analysis, and it deserves a special name. It might be called *autognosis*.

Dr. Brown concluded with the caution that there is no panacea in psychotherapy. The chief factors involved in successful treatment are reassociation, psychocatharsis (abreaction), autognosis, and the personal influence of the physician, including "transference" and suggestion. Of these four factors the physician's personal influence is of the chiefest importance, since it is a determining condition of the effective working of the other three factors.

PENSIONERS' RECORDS.

IN an annotation entitled "Temporary or Permanent Pension?" which appeared in *THE LANCET* for Oct. 23rd, we set out briefly the arguments against any extensive award of permanent pensions at the present time. So long as the disability is liable to change a careful medical record of the pensioner's condition is unavoidable. More than a year ago the Ministry of Pensions instituted a uniform system of records—medical record cards—and there is now in existence in duplicate for nearly every pensioner a medical record card on which is briefly but comprehensively recorded the complete medical history of the pensioner as known to the Ministry. This medical abstract is obtained in the first place from a study of the army documents and medical board papers; after the card has been made out, the finding of each successive board, the result of each period of treatment, and the opinion of each doctor who deals with the case are entered thereon in chronological order. In this way, at any given time, it is possible by reference to the record card to obtain a complete summary of the man's medical history up to date. The cards are kept in duplicate, one copy remaining with the pensioner's documents, the other being in the custody of the deputy commissioner of medical services (D.C.M.S.) of the area in which the pensioner resides. Arrangements are made to ensure that an entry made on one card is duly recorded on the other also. The card kept by the D.C.M.S. is, so to speak, the active and travelling card, and is sent by him to any medical officer, medical referee, or other doctor who may be called upon to treat or examine the case in order that the latter may make an appropriate additional entry on it.

When the doctor to whom the card is sent for such entries is an official of the Ministry there is naturally no difficulty in obtaining his entry on the card. But we are informed that only in comparatively few instances is the Ministry able to obtain from the consultant staff of a civilian hospital any entry on the pensioner's record card. This may be due in some cases to a natural dislike to the filling up of forms, but the roots of the difficulty lie much deeper in the multifarious claims upon the time and energy of the voluntary consultant which are subject to physical limitations. The Ministry of Pensions desires to obtain the opinion of these experts, but obviously the successful working of the scheme rests on a voluntary basis and stands or falls by the good will or otherwise of those who take part in it. The Medical Services Division of the Ministry of Pensions lays the greatest stress on the necessity for the efficient working of the record card system amongst its own officials, and regards the scheme as the basis upon which the medical work of the Ministry must rely. The scheme is also greatly to the advantage of the profession as a whole, for nothing is more desirable than a comprehensive and accessible system of medical records in regard to all patients in this country, whether pensioners or not. Skilled time and labour should not be expended in eliciting clinical data which have already been found out, although in fairness to the patient his

No doubt the success which has attended the work of the bureau has been due to the fact that a careful selection of candidates is made in order to save time, trouble, and expense and disappointment to all concerned. No fees are charged to either employer or employed; the bureau is maintained by voluntary contributions from members of the London Society for Women's Service and from those who benefit by its services. All inquiries should be addressed to the secretary, Miss P. Strachey, London Society for Women's Service, 58, Victoria-street, S.W. 1.

FRACTURE OF TIP OF DISTAL PHALANX.

FRACTURE of the distal phalanx of a finger appears to have received no attention in this country, and to American surgeons we are indebted for pointing out its importance. We have previously described the condition in an annotation.¹ Dr. R. F. Maddren has now published a paper² which throws further light on the subject. He points out that contusions of the fingers and toes are common, and that the usual expectant treatment affords relief in the majority of cases. But a minority do not do well. Throbbing pain continues for days. Swelling of the finger-tip and tenderness become marked, and after a varying period paronychia may develop. Such cases are not always the sequel of severe trauma. Dr. Maddren believes that in these cases the ungual tuberosity of the phalanx is fractured. The X rays will show a fracture in practically all the cases with marked symptoms as well as in many of the mild cases. These fractures give rise to prolonged disablement, which is explained as follows. The pulp of the finger-tip lies in a closed trabeculated connective tissue sac, which is least dense at the lateral borders. Hence extravasated blood often escapes to the nail-bed and may give rise to subungual hæmatoma. The blood-supply of the diaphysis of the phalanx comes from vessels which run parallel to the bone, one on each side within the closed sac. When the sac is distended by œdema or extravasated blood the blood-supply may be cut off and necrosis result. The epiphysis is not affected because its blood-supply comes off before the vessels enter the sac. For the same anatomical reason necrosis of the diaphysis occurs in whitlow. Pain similar to, but less severe than, that of whitlow is produced. Swelling, due to œdema and hæmorrhage, is generally present, and subungual hæmorrhage if sufficient time has elapsed. Even a few minutes after the injury Dr. Maddren has never been able to elicit crepitus or to palpate the detached fragment. The X rays are the only means of positive diagnosis. The results of prompt operation in a series of 27 consecutive cases have been uniformly good. The cases occurred in male factory workers, and the average loss of time from work was only 6.3 days. Dr. Maddren recommends that as soon as the diagnosis is established an incision be made into the connective tissue sac. If the pressure is thus relieved its sequelæ, pain and sepsis, will not supervene. The site and method of incision vary with the case. If there be blood under the nail it can sometimes be evacuated by inserting the tips of sharp-pointed scissors between the free edge of the nail and the nail-bed and by slightly opening the blades when the points have penetrated about one-eighth of an inch. This method has the objection that the tissues are opened through a field that can be only imperfectly sterilised. The more radical method of making two short longitudinal incisions through the eponychium and resecting a transverse strip of nail where it is thin and soft, is sometimes indicated when the blood is principally at the lunula. If no extravasation is seen beneath the nail a quarter-inch incision may be made with a small scalpel or cataract knife into the lateral aspect of the finger-tip, deep enough to enter the connective tissue sac. An attempt should be made to place this incision

so that the digital arteries and nerves are not severed. These operations can be performed under local anaesthesia.

SILVER-SALVARSAN IN MULTIPLE SCLEROSIS.

THE vogue which silver-salvarsan has enjoyed for some time in Germany is reflected in the flow of publications on this drug during the past two years in the German medical press. It is still too early to strike a balance with respect to this drug in relation to the other members of the salvarsan group, but it is indicative of the favourable impression made by silver-salvarsan that its exhibition has latterly been extended beyond the limits of the definitely syphilitic diseases. Undeterred by the flaws in the evidence connecting syphilis with multiple sclerosis, Dr. Ernst Speer,¹ of Jena, has recently treated 17 cases of this disease with intravenous injections of silver-salvarsan. His results were good, bad, and indifferent. The following case was one of the most hopeful:—

A soldier, aged 34, had suffered since 1917 from typical multiple sclerosis which had first manifested itself as a spastic spinal paralysis. The clinical picture was dominated by severe spasmodic contractions affecting both legs and preventing him from walking. On May 18th, 1920, he was given 0.05 g. of silver-salvarsan; from May 21st onwards he was given 0.1 g. twice a week, and from June 14th he was given 0.15 g. twice a week. Altogether 2 g. were given over a period of eight weeks. He gained 7 kg., could walk with the help of two sticks, and the spasmodic contractions were appreciably reduced, no longer preventing him from carrying out muscular exercises with his feet while he lay in bed. And, most striking of all, Babinski's sign, which had been positive, was no longer demonstrable with certainty.

But in another case the drug, so far from benefiting the patient, seemed to stir into fresh activity disease which had been stationary for a considerable period.

The patient was a workman, aged 39, whose disease had begun in 1903. His symptoms included tremor of the limbs, ataxia, double irido-cyclitis, and slight dementia with euphoria. After the third injection of silver-salvarsan the severe tremor of the left arm from which he had previously suffered ceased altogether. The total amount of silver-salvarsan given was 2g. About eight weeks after completion of the treatment he became much worse; great loss of weight, optic atrophy, paralyses, and general debility were observed, and the improvement in the condition of the left arm was not maintained.

Grouping his cases in four classes, Dr. Speer shows that in six cases improvement was effected, in two there was improvement with complications, such as tachycardia and neurosis, in two there were complications without any compensatory improvement, and in as many as seven cases the disease seemed even to be aggravated by the treatment. Many physicians would have abandoned a line of research punctuated by so many failures, not to say disasters, but Dr. Speer is inclined to discount many of his failures on the score of the advanced stage of the disease at the time of treatment. As he quite rightly says, the prognosis for multiple sclerosis is at present so bad that the need for investigating new remedies is very great.

It has been decided to hold an additional Final Examination for the Fellowship of the Royal College of Surgeons of England to commence on Feb. 11th, 1921.

¹ Münch. med. Woch., Oct. 29th, 1920.

MINISTRY OF PENSIONS: DEPARTMENTAL COMMITTEE.—The Departmental Committee, which has been appointed to inquire into the administration of the Ministry of Pensions, held its first meeting at Cromwell House on Nov. 25th under the chairmanship of Major G. C. Tryon, M.P., Parliamentary Secretary to the Ministry. It was decided, in view of the very wide scope of the inquiry, to divide it into five sections, each of which will be dealt with by one of the following subcommittees, who will report to the main Committee: (a) Local War Pensions Committees and Regions; (b) Awards and Special Grants Committee; (c) Treatment and Medical Boards; (d) Pension Issue Office; (e) Officers. Before proceeding to take evidence the members of the Committee will visit the branches of the Ministry and will examine the regional machinery. Major C. E. Breeze, M.P., and Major C. F. Entwistle, M.P., M.C., LL.B., have been appointed members of the Committee.

¹ THE LANCET, Oct. 18th, 1919, p. 532.

² Journal of the American Medical Association, Oct. 30th.

mosquitoes infected with malaria parasites. These parasites are most vulnerable to quinine in their youngest forms, and it is probable that a dose of quinine taken every evening shortly before the period of mosquito activity may, for a time, be effective in destroying recently introduced sporozoites. The drug is, however, rapidly excreted, and, in the absence of a mosquito net, a second dose will be required in the course of the night if protection is to be maintained throughout the danger period. During the later phases of their growth within the red corpuscles, the parasites are both more resistant and better protected from the effects of quinine. If taken in less frequent doses or at irregular intervals, quinine is ineffective for prophylactic purposes and is, moreover, harmful, in that it may induce a sense of security which, in fact, is non-existent. It is evident that such a routine, difficult and irksome to the individual, is well-nigh impossible in dealing with a large community, whether of troops or civilians, and more particularly so under conditions of active service, and it was a wise judgment that led the authorities in the latter stages of the war to give up the futile attempt to prevent malaria by 10 gr. doses of quinine once or twice a week, and to concentrate on more effective measures, such as the details of the proper protection of individuals by means of nets, combined with an energetic campaign against mosquitoes and their breeding-places in the neighbourhood of camps.

There are two aspects of malaria prevention the importance of which is often overlooked: (1) The part played in prevention by the efficient treatment of malaria patients, whereby the supply of parasites is controlled at its source; this is probably the rôle in which quinine, viewed as a protective agent, attains its highest value. (2) The adequate isolation of malaria patients by the use of nets, thereby protecting mosquitoes from infection. If it were possible in any community, by means of nets and screened buildings, to keep mosquitoes from access to all malaria patients and carriers for a season or two, there is, according to our present knowledge, good reason for supposing that fresh infections would cease to occur in that locality, and that the mosquito, in the absence of fresh importations of parasite carriers, though still a nuisance, would become no more dangerous than the common midge.

DEFINITION AND CARE OF MENTAL DEFECT.

SEVERAL topics of general interest came under consideration at the joint conference of the Central Association for the Care of the Mentally Defective and the National Union of Special Schools Teachers held at the Church House, Westminster, on Nov. 25th-27th. A discussion on the relation of special schools to certified institutions for defectives showed the difficulties in the path of adequate collaboration between the education and the control committees of local authorities. Some of these difficulties lie in the definitions and drafting of the Acts. The Education Acts provide for the education of children who, while mentally defective, are neither dull and backward on the one hand, nor imbecile on the other, making no attempt to define these terms. The Mental Deficiency Act, on the other hand, defines an imbecile as one who is incapable of managing himself or his affairs, or, in the case of a child, cannot be taught so to do. It was pointed out that there are many who can be taught and can make definite progress in school subjects who never acquire this amount of wisdom, so that on the completion of their school career they might rightfully be called imbeciles; but if so were they, although capable of deriving benefit in a special school, rightfully or legally admitted thereto? On this some coordination between the Board of Control and the Board of Education is essential, although, as all children are educable within limits, it might be still easier to let the whole care of children under 16 rest with education authorities alone. In a discussion on the place of the medical officer, the psychologist, and the teacher, it was generally agreed that while the teacher's opinion should have great weight, and the observations of a lay psychologist when

available should be welcome, nevertheless the onus of the final opinion should rest with the medical officer, who should have had a proper training in psychological medicine. Several speakers regarded the most suitable rôle for the psychologist to be the devising and standardising of tests and of methods of investigation or education. Teachers' representatives seemed to desire a statutory right to sign certificates of defect conjointly with the medical officer, apparently overlooking their existing powers, under the Education Act of 1914, of reporting at the request of parent or of the local authority. In some cases teachers omit details from the forms at present in use, and do not take advantage of opportunities of being present when children from their schools are examined; if they did so they might find little cause for complaint.

Reviewing the advantages of institutions of different sizes, Dr. A. Rotherham, medical commissioner to the Board of Control, showed the great possibilities of classified recreation and variety of occupation secured, while Miss Pierce pleaded for the individual care, more homely life and closer personal interest in the small home. Miss Dendy showed that if the institution consisted of blocks of separate houses or villas the useful features of either type could be conserved and combined without limits in size. One speaker thought that with the restriction of hours of work now in force a staff of 17 would be required for a home for 12-25 inmates, but that the proportion became more reasonable with larger numbers. Emphasis was laid on the necessity for varied occupation and opportunities for real moral education and moral choice in institutions of all types, whether State institutions, certified institutions, certified houses, or approved homes. The final meeting on the future of education for physically defective children showed a unanimous desire for early ascertainment and treatment, and a hope that in such an event the numbers of schools for older children might be materially reduced. So long as the present conditions remain the teachers must urge the provision of more ambulances, more school meals, and a freer general education, for the cripple child can rarely attain to equality with his normal fellow at the central or trade schools, and vocational education may be overdone without an adequate basis behind it. Some of the speakers held that, as scholarships and maintenance grants were largely given in ordinary schools, maintenance grants should be given in the P.D. schools to cover the period of full-time instruction from 14-16, when the normal child might be earning while in attendance at a continuation school. The feelings, first, of dependence on the part of the child, and, secondly, of irritation on that of the parent at having to support a child he feels should be adding to the family exchequer, are prejudicial both to health and education.

THE WOMEN'S SERVICE BUREAU.

WE are not infrequently asked at this office to recommend literary assistants of various scope and for differing duties, though knowledge of medical phraseology is always needed. We recommend to those in need of this kind of help application to the Women's Service Bureau. The bureau, it may be remembered, was opened in the first week of the war, and has been the means of training, advising, and placing some thousands of women in suitable work. The war has passed, but the need for such an agency remains, and experience since the armistice shows that both employers and applicants appreciate the value of the bureau no less in times of peace than in times of war. From the records of work done it can be gathered that 10,000 employers have been approached since the bureau was started in 1914, and many administrative and other positions, such as correspondence and confidential clerks and secretaries, receptionists, laboratory assistants, foreign correspondents, stenographers, telephone operators, draughtswomen, fitters, welders, examiners and setters up, charge hands, bench and machine workers, have been filled to the mutual satisfaction of both employer and applicant. The applicants have numbered some 60,000.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

THE Winter Session of the General Medical Council, the opening of which was reported last week, continued until Friday, Nov. 26th, under the presidency of Sir DONALD MACALISTER.

The Case of Charles Edward Dolling.

On Thursday the Council completed the consideration of the case of Charles Edward Dolling, M.B., Ch.B. He was summoned to appear before the Council on the following charge. That at Westminster Police-court, on Jan. 21st, 1920, he was convicted of importing for immoral purposes in Ebury-street, and was fined £10 or, in default, six weeks' imprisonment. On appeal to the General Quarter Sessions this was confirmed. The defendant appeared, and was represented by Mr. Nelson, K.C. The whole hearing of the case was conducted in camera, and the decision announced was that the Council did not see fit to erase his name from the Register.

REVISION OF THE CURRICULUM.

A report from the Education Committee on the revision of the whole curriculum in medicine was received.

It was remitted to this Committee in 1918 to inquire whether any action should be taken towards promoting or systematising the teaching of preventive medicine in the medical schools and in clinical hospitals throughout the country, and to report. Circular letters were issued to the teaching bodies, inviting their co-operation, and the replies received were communicated to the Council and discussed by it in November, 1919, and May, 1920. As it became clear that the questions raised on the teaching of the preventive aspects of medicine involved the revision of the whole curriculum in medicine, the Council remitted to the Education Committee for further report the consideration of the methods under which the necessary revision might best be carried out.

Subcommittees on Curricula.

The Education Committee proposed that special subcommittees should be appointed to consider and report on the details of the curricula in the several departments of medical study. The report runs:—

In respect of the urgent necessity for the co-ordination of the teaching work throughout the whole course, and of its organised adaptation to the main purpose in view, the education of the general practitioner, it is proposed that each committee should consist, not only of specialists in the branch with which it mainly concerns itself, but of others, and particularly of representatives of the final or clinical years of the students' training. In addition, the committees should be charged, each within its own sphere, with the important duty of advising as to the methods under which the teaching of the "preventive aspects of medicine" may best be carried into effect. A number of special points might also be referred, with advantage, to the consideration of the appropriate committees. These are: (1) the need for additional teachers; (2) the suggestion that clinical teachers should give the whole or most of their time to teaching work; (3) the opinion expressed that too much time is given in the present curriculum to the more specialised branches of medical and surgical practice; and (4) the plea for the establishment of an organised scheme of post-graduation courses for general practitioners.

It is by no means advisable that absolute uniformity among the bodies in their teaching arrangements should be aimed at. The Education Committee does not propose that the Council's resolution in regard to professional education should be modified in any way. This paragraph reads as follows:—

It is to be understood as regards the above-mentioned subjects (the list of essential classes) that the Council offers no opinion as to the manner in which the subjects should be combined or distributed for purposes of teaching or examination. But it is of the utmost importance that the elements in each particular curriculum which are, from the point of view of the clinical teacher, essential to the adequate training of the practitioners of to-day, should be clearly indicated.

We comment on this case elsewhere.—Ed. L.

necessary for the eradication of the disease have been studied and defined, notably at the Conference in London. The Polish Government are alive to the urgency of the work to be accomplished. The organisation that they have created to fight epidemic disease, notably typhus, is excellent and has already achieved results that do them much credit. But the material at their disposal is altogether inadequate for the intensive and extended campaign that it is necessary to wage without delay.

(2) *The Cholera Epidemic.*

At the end of September cholera appeared in territory reoccupied by the Polish forces in the neighbourhood of Lida and Grodno. Previously there had been a large incidence of this disease in Soviet Russia. Thus, an official Soviet statement dated August 30th, 1920, reported extensive prevalence of cholera in parts of Soviet territory adjacent to the Russia-Polish Armistice line as well as in other parts of Russia. In the first six months of 1920, 5675 cases of cholera were notified in Russia. By the middle of October, 1920, soldiers and prisoners of war had carried infection to various parts of Poland. Up to date (17/11/20) 21 foci of infection have been reported, and new foci are still being discovered. In Poland proper reported cases number 299, in addition to which 119 carriers have been discovered. Of the 299 cases, 30 were civilians; the great majority of the remainder were prisoners of war. In addition to the above, 461 cases of cholera have been notified in the eastern territory now under Polish military administration; of these 100 were civilians. The occurrence of cholera cases in 21 widely separated places in Poland, their very high carrier rate, and the extremely defective nature of most of the water-supplies combine to make the situation full of danger. An unpleasant fact in this connexion is the very high incidence of typhoid now prevailing in most parts of Poland, where the conditions favourable to intestinal disorders are generally present. The Polish Health Administration is alive to the dangers of the situation, and inoculation with a cholera vaccine is being widely carried out. The whole army and all the prisoners of war have now been inoculated, as well as large numbers of the civil population.

On our tour of inspection we encountered cholera at Lida, Warsaw, Wadowice, and Zakopane. At Wadowice we inspected the prisoners' camp. At the time of our visit there were 4500 prisoners of war in very poor condition. The Polish authorities are obviously finding it extremely difficult to provide adequate food and clothing for their prisoners. There were 90 cholera cases in the prisoners' hospital at Wadowice, as well as 80 cases of relapsing fever and 36 of typhus. We are informed that there are 80,000 prisoners of war in Poland at the present time. Half of these are in prisoners' camps, the remainder being scattered about the country in working parties. The presence of this large number of prisoners of war, with very enfeebled powers of resistance to disease, is a most unwelcome complication of the already sufficiently difficult health problems of Poland.

Conclusions.

We are of opinion that it is both necessary and urgent to afford effective material assistance to Poland in her struggle against epidemic disease, especially against typhus fever.

We recommend that the League of Nations render this assistance on the basis elaborated by the London Conference and by the Council meeting at Rome.

Dr. POTTEVIN,
TH. MADSEN,
R. NORMAN WHITE.

ROYAL SUSSEX COUNTY HOSPITAL, BRIGHTON.—The Chinese Minister opened a Chinese Fair at Brighton on Nov. 24th in aid of this hospital. He said that the stranger to this country was struck by the large number of hospitals, and especially by the fact that they were all supported by voluntary contributions. The hospital at Brighton is now in its ninety-second year, and its upkeep calls for the sum of £30,000 per annum.

TYPHUS AND CHOLERA IN POLAND: THE ACTION OF THE LEAGUE OF NATIONS.

THE Council of the League of Nations recently deputed to a small Commission the task of proceeding at once to Poland and making a report to the League at Geneva on the conditions prevailing in that country as to cholera and typhus. The Commission consisted of Professor Madsen, Director of the State Serum Institute at Copenhagen; Dr. Pottevin, the Joint Director of the International Office of Public Hygiene at Paris; and Dr. R. Norman White, C.I.E., of the League of Nations. The Commission arrived in Warsaw at the beginning of November, and, having only a limited time at its disposal, decided, rightly, not to make a comprehensive investigation, but to select for close attention certain representative places. The two areas visited were the northern part of the eastern territories as represented by Lida, Grodno, and Wolkowisk; and Galicia, whence they went to Lemberg, Zolkiew, Nadworna, Zuraki, Bohorodczane, Stanislawow, Cracow, Wadowice, Sucha, and Zakopane.

The following is a résumé of the observations of the Commission, first upon typhus, and secondly upon cholera:—

(1) *The Typhus Epidemic.*

The area visited in the northern part of the eastern territories is poor and has suffered severely as a result of the war, which has been waged there almost incessantly since 1914. The retreat of the Bolshevik forces had taken place only a few weeks before the time of our visit. The destruction of a large number of houses, especially in the villages, has brought about an almost incredible amount of overcrowding. In one place the entire population of a village, which had been completely destroyed and which had formerly consisted of a hundred houses, was herded together in a single building, which was itself in an advanced state of disrepair.

The demands of the war have drained the country. Information given us by the local authorities indicates that food reserves for the winter are non-existent. The numbers of horses and cattle are reduced to a quarter of the pre-war standard. Strictly speaking, this part of the country has never possessed a sanitary organisation. Before the war there was no *sanitatos* in these districts, and such insufficient organisation as had been created by the Polish Government had been destroyed during the course of the recent military operations. At the time of our visit these were in course of reconstruction.

In spite of the impossibility of obtaining epidemiological statistics of any value, it is known that typhus exists in endemic form in this part of the country; and although the time of our visit did not coincide with the season of maximum incidence, we saw sufficient to indicate that the disease is extremely widespread and of a severe type. In the towns hospitals that had only been reopened a few days already contained typhus patients. At Grodno, for example, the epidemic hospital, which had been reopened three weeks previously, contained 160 patients suffering from either typhus or relapsing fever, in addition to which a further 70 typhus patients were accommodated in an annexe. In the villages typhus cases were found in large numbers, sometimes in every house visited. On one occasion we found in a single house eight patients in various stages of the disease, in addition to two bodies of persons who had died of typhus one on the day of our visit, the other on the previous evening.

In Eastern Galicia, as in the area just described, operations of war, which have continued with slight intermissions since 1914 almost up to this date, have been responsible for very extensive destruction of dwellings. The resulting conditions of poverty and overcrowding are specially favourable to the propagation of epidemic disease, notably typhus. The sanitary organisation, removed or destroyed during the course of the recent campaign, is in process of reconstruction, but at the moment it is impossible to obtain statistics of the present prevalence of typhus. As an example of

the lack of information we may cite our experience at Zuraki. This small village in the Bohorodczany district had reported no cases of typhus to the sanitary authorities, but a house-to-house inquiry in one portion of the village, of half an hour's duration, resulted in the discovery of two typhus patients in one house, three in another, five in a third, and in a fourth we found all the occupants convalescent from a recent attack of the disease. At the present time typhus is not prevalent in Eastern Galicia in the acute form in which it appeared last spring. All the same the disease is very widespread and we found cases in every place visited, though in most instances, few in number. Before the war typhus was endemic in a few well-defined areas of Galicia; to-day the whole of Eastern Galicia must be regarded as an endemic focus of the disease.

The results of the personal observations that we have been able to make do not permit of an opinion as to the course typhus will take in Poland or as to the dangers likely to accrue to other countries. Abundant information concerning these matters is contained in the publications of the Polish Ministry of Health; in the reports made in 1919 to the League of Red Cross Societies by Dr. G. S. Buchanan, Colonel H. S. Cumming, Dr. Aldo Castellani, and Dr. Visbecq, and in 1920 by Dr. Chodzko to the London Conference; in the reports of Médecin-principal Gauthier, Director of the Health of Service of the French Military Mission, &c. Here we would direct attention to the fact that the years 1919 and 1920 were both characterised by extremely severe epidemics. The number of cases notified—it is necessary to point out that the figures can be only an approximation much below the actual numbers—were most numerous in 1919, in the months of April and May, when 34,875 and 31,807 cases respectively were reported, and in 1920, in January, 27,984 cases. In June, 1920, the last month for which statistics are available, 3550 cases were notified in Congress Poland, 1795 in Western Galicia, and 5850 in Eastern Galicia; these figures refer to the civil population only. The incidence of the disease in the army of the interior varied in different cantonments between 0.01 and 0.60 per cent. (Łwow), with a mean incidence of 0.09 per cent. In prisoners' camps the typhus incidence amounted to 1.33 per cent.

The reports indicate that typhus is very unequally distributed in Poland. The north-western districts are practically free from the disease, as is also the district of Posen; the southern and eastern districts are most seriously affected. We may conclude that though typhus does not exist at the present time in the form of an acute epidemic—and recalling that the present is the season of low incidence of the disease—it is very widespread throughout large areas, notably in the south and the east. The areas we visited are infected to a degree of which official documents give no indication.

It is impossible to frame a forecast of the future course of an epidemic now endemic over wide areas, but our knowledge of the epidemiology of typhus enables us to foresee that seasonal outbreaks will continue to occur, the gravity of which will be chiefly determined by all social and economic conditions which are likely to create a state of physical depression among the population submitted or exposed to infection. In any case, its persistence institutes a permanent danger to the rest of Poland and for all other countries. In countries with a high standard of personal hygiene there is not much to fear in the way of extensive outbreaks of typhus. But even in such countries there are groups of individuals and communities where lack of cleanliness presents all the conditions necessary for the spread of the disease. A report of the League of Red Cross Societies rightly calls attention to the recent epidemic in Holland as a case in point.

The eradication of typhus in the areas described appears to us, therefore, to be a question of international importance. Its continued prevalence constitutes a standing menace to other countries commensurate with the intensity of the epidemic. Measures taken at the frontiers of other countries can diminish the danger, but they cannot obliterate it altogether. The measures

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treatment of underlying principles and developmental history, cannot well be dispensed with in medical training. The most potent factor in all teaching is the personal influence of the wise and experienced teacher. No text-book can give to the pupil the real knowledge and the inspiration which he derives from contact with the master.

The Committee did not think it advisable to make any general recommendation on this subject.

Recommendations to the General Council.

The following recommendations were made by the Education Committee for the acceptance of the General Council:—

1. That the "resolutions of the General Medical Council in regard to professional education" as revised in December, 1919, be so modified as to provide:—

(a) That before registration in the students' register, every applicant shall be required to have passed, in addition to the examination in general education, an examination in elementary physics and elementary chemistry conducted or recognised by one of the licensing bodies.

(b) That a student who has diligently attended an approved course of instruction in elementary biology in a secondary school or other teaching institution, recognised by a licensing body, may be admitted to a professional examination in elementary biology immediately after his registration as a student of medicine.

(c) That before registration as a student every candidate shall produce evidence that he has attained the age of 17 years.

(d) That specialised instruction in physics, chemistry, and biology in their application to medicine shall be included in the professional curriculum, the teaching arrangements in each case to be determined by the licensing body.

This recommendation was accepted by the Council with the addition of a rider to the effect:—

Provided that the minimum standard of general education required by the Council for registration as a student should be raised to a standard equivalent to that demanded in other learned professions previously to, or concurrently with, the coming into operation of the requirements of a preliminary examination in science before registration.

2. That the "recommendations of the Council" in regard to "professional examination" as revised in November, 1909, be so modified as to provide: That in the regulations for the several examinations it shall be provided that the examiners be empowered in assessing marks to take into account the duly attested records of the work done by the candidates throughout the course of study in the subject of the examination.

3. That the Council approve the appointment of a number of special subcommittees, as detailed below, "mixed" in constitution, and each containing representatives of clinical studies, to be charged with the duty of reporting to the Council on the nature of the several curricula, defining the essential contents from the standpoint of the adequate training of the general practitioner; of advising as to the proper coordination of the work of instruction; and of making recommendations concerning the effective teaching of the preventive aspects of medicine: (1) the preliminary sciences, as related to medicine; (2) anatomy and physiology; (3) pathology and pharmacology; (4) medicine, surgery, and midwifery.

These two recommendations were accepted by the Council without modification. It was further agreed that the requirements of the first recommendation should come into force on Jan. 1st, 1923.

PUBLIC HEALTH DIPLOMAS.

Arising out of the report of the Public Health Committee the Council accorded its approval to an alteration of the Regulations of the University of Durham for its degree of Bachelor of Hygiene, proposing to teach the subjects of bacteriology and chemistry concurrently during two terms. It was agreed that the two months' course of instruction "on entry," and the two months' "course for promotion" at the Royal Naval Hospital, Greenwich, should together count for four months' study, provided that the subjects of study in either of them did not overlap, and that the special course of three months at Haslar in advanced public health should be recognised as sufficient to reduce to three months the instruction under an M.O.H. required in the regulations. Any remark upon the reports of the Inspector in Public Health was deferred until the inspection had been completed, so that a general review of the examinations as a whole might be made.

The Council also authorised the Public Health Committee to consider and revise the existing regulations and rules for diplomas in public health, originally

adopted in 1880, since amended and amplified with a view to bringing the special course of instruction required of candidates for the diploma into harmony with the duties of a modern medical officer of health.

Reports were received and accepted from the Students' Registration Committee, the Pharmacopœia Committee, the Dental Education and Examination Committee, and the Irish Branch Council.

The proceedings terminated with a vote of thanks to the President.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Medical Matters in Dublin.

CURFEW at 10 is likely to interfere with the working of the medical societies, which normally meet at 8.30 P.M. For the purposes of their professional work medical men are given permits to be abroad during prohibited hours, but few care to rely on their permits, except in cases of urgent necessity, and except as regards midwifery little medical work is now undertaken at night.

On Nov. 21st hospitals on the north side of Dublin had the unusual experience of treating a number of recent gunshot wounds. The total death-roll in 24 hours in Dublin appears to have been about 30. Last week a further order was issued by the Government prohibiting the holding of inquests in several areas, including the county and city of Dublin. For some weeks past the coroner of Dublin has not been allowed to hold inquests in cases of sudden death where the forces of the Crown were concerned.

Queen's University of Belfast.

On the decease of the late Sir John Byers it was decided to separate the departments of gynecology and midwifery, and to found a chair in each department. To the chair of gynecology the Senate has appointed Mr. R. J. Johnstone, F.R.C.S. The new professor had a brilliant career in the Queen's University, and enjoys a high reputation as an operator and teacher. He is gynecologist to the Royal Victoria Hospital and surgeon to the Belfast Maternity Hospital. He is also chairman of the Irish Committee of the British Medical Association. To the chair of midwifery and diseases of infancy the Senate has appointed Dr. C. G. Lowry, who holds the positions of gynecologist to the Ulster Hospital for Women and Children, and assistant gynecologist to the Royal Victoria Hospital. He obtained high honours during his academic career, including a gold medal at his M.D. examination, and enjoys an extensive practice in his own department. Both these appointments will add strength to the progressive spirit which emanates from the Belfast Medical School. At the meeting of the Senate on Nov. 24th it was decided to raise the existing lectureship in public health to the rank of a professorship in recognition of the growing importance of this department. The present lecturer is Dr. W. J. Wilson, whose appointment to the new professorship will be heartily anticipated by the profession. Dr. Wilson recently discharged the duties of medical officer of health of the Belfast Corporation during the temporary illness of the present incumbent, Dr. H. W. Ballie. He holds the positions of bacteriologist to the counties of Down, Antrim, and Armagh. He served in the war and attained the rank of Major. He is the author of a "Students' Text-book of Hygiene," and has made numerous contributions to medical journals upon bacteriology and cognate subjects.

At the same meeting of Senate the following report of the Standing Committee was approved:—

"That in future the medical students in chemistry should be separated from the science students, and should be given a course of training specifically devised in view of their special needs, as is done in other universities. In order that this improvement may be carried out with the present staff of the Chemical Department the Academic Council further recommends that the lectures to medical students in chemistry, being mainly organic chemistry, should be delivered by the lecturer in organic chemistry, whilst the professor of chemistry should be responsible for the laboratory teaching of the medical students, which will bring him into personal contact with them."

The work which it is proposed to assign to the special sub-committee on curricula will be arduous, and will require a reasonable allowance of time for its completion. The Council cannot undertake it unaided; each committee should have power to co-opt additional members as may seem necessary. It is proposed that, in the first instance, special curricula subcommittees, as defined above, should be appointed in the following groups of subjects:—The preliminary sciences in their relation to general medicine; anatomy and physiology; pathology and pharmacology. It is probable that it may be necessary, later, to appoint a committee to advise as to the effective co-ordination of the teaching in the final subjects.

The "Overloading" of the Curriculum.

The Education Committee admits that the difficulties arising from overloading of the curriculum have for long been acutely felt by the teachers in every branch, and more particularly by those in the all-essential final departments of study. The progress of modern medicine and the growing claims which a reorganised and extended public health service is making upon professional equipment are steadily increasing the congestion. Suggestions for remedy are thus summarised in the report:—

- (1) The extension to a longer period of the present five-years' curriculum.
- (2) The alteration of the minimum age of entry upon the curriculum of study from the sixteenth to the seventeenth or eighteenth year.
- (3) The exaction of a higher standard than that presently accepted in the preliminary examination in general knowledge.
- (4) The transference in whole or in part of the study of the preliminary sciences (physics, chemistry, and biology) to a period antecedent to enrolment on the students' register and the commencement of medical study.
- (5) The institution of an additional year of clinical study after licence or graduation and before the actual entry into practice.

The Education Committee was of opinion that the detailed discussion of certain of these suggestions, and in particular of Nos. 1 and 5, might be advantageously postponed until the curricula subcommittees had reported to the Council. The delay which this reference would involve would be compensated for by the opportunity which it would afford of estimating the effect of the preliminary steps in revision. The report proceeds:—

The present problem which confronts the teaching schools is to find time for the effective study of the more modern method of clinical work without impairing the scientific basis on which all medical education must of necessity rest. The question, however, of the prescribed length of the minimum curriculum cannot be discussed apart from that of the qualifications of the student. Very many students, some of them at the age of 16, enter upon the curriculum in medicine without any training at all in the methods of the study of science. On these much of the brief space of time allotted to the earlier teachers in medicine is wasted, and classes which ought to be specialised towards a particular end are prevented from giving more than a generalised outlook upon the important subjects with which they deal. The prejudicial influence of the mentally immature entrant makes itself felt throughout the whole course.

Teaching of Preliminary Scientific Subjects.

The Education Committee therefore proposed that all applicants for admission to the Register of Medical Students, except those who had already graduated in physical and natural science, should be called upon to afford evidence of having passed, precedent to registration, and in addition to the prescribed examination in general knowledge, a satisfactory examination in elementary physics and chemistry treated from the general point of view. In regard to the precise methods of ensuring this the report runs:—

The arrangements as to the standard to be exacted in this second or science preliminary examination should be left to the individual licensing bodies, each of which might either impose examinations of its own or accept certain publicly recognised examinations, as, for instance, the higher certificate of the Schools' Examination Board in England or the leaving certificate of the Scottish Education Department. Those of the candidates for registration who find themselves unable on leaving school to submit to the proposed new test would, naturally, be permitted to study in the general science classes of the medical school or university which they seek to enter, and on passing would then be entitled to commence the five-years' course in medicine.

In view of the special necessities of general biology (which subject, it will be noted, has not been included by the Committee as an essential element in the proposed science preliminary examination, and in which the teaching and examination in many secondary schools has not yet reached the standard which has been attained in these institutions in physics and chemistry) the Committee proposes that entrants upon medical study, who have diligently attended specially recognised classes in schools or other institutions definitely approved for the purpose of giving instruction by a licentiate body, may be admitted to the general or elementary examination in biology immediately on registration. The Committee is also of opinion that chemistry, physics, and biology, studied from the point of view of their special relations to medicine, should form an integral part of the professional curriculum, and has recommended accordingly. In accordance with the general scheme of the Council the determination of the particular place in the curriculum to which each of these specialised courses should be assigned rests with the individual bodies.

Age of Entry on Medical Study.

As a corollary to the foregoing the Committee made the further recommendation that the minimum age entitling to admission to the students' register should be raised from 16 to 17 years.

Professional Examinations.

The Education Committee recognised that the undue stress laid on the test by written examination, frequently repeated, was a weakness and a source of danger in our educational system. The report deals with this matter thus:—

The habit of judging progress in study by a method which demands severe but spasmodic efforts directed towards the repetition of details, often unimportant and usually very partly understood by the pupil, is, unfortunately, growing upon us, and tends to obscure the true purposes of education. A report of the Education Committee in 1905, speaking of our examination system, expresses the opinion that it is paralleled only by that in vogue in China. It may be said, without fear of contradiction, that in medicine to-day the exigencies of the examinations threaten to dominate both teaching and study. The student is in danger of being led to believe that the only work which really counts is that spent in preparation for the written examinations, be they class or professional. Some relief is urgently called for in the interests of true scientific study.

The specific proposal, supported by all the speakers referred to above, is to the effect that the work of the student throughout the whole curriculum, suitably tested and recorded, might be taken into consideration as an important element in the assessment of the marks awarded in the professional examinations. The adoption of the scheme would encourage steady work on the part of the student throughout the entire course, and would tend to diminish the too prevalent practice of "craming." The Committee has endorsed this proposal and would recommend it to the Council.

The proposal, it will be noted, is permissive in character. The Council has issued to the licensing bodies a series of resolutions and recommendations which define the courses of instruction and methods of examination of which it approves. Dealing with the latter (methods of examination) the Council distinctly implies and in certain instances definitely states that "examinations should be written, practical, and oral." The importance of the practical examination in all subjects which are taught in practical classes will be universally recognised, and it is worthy of consideration whether the apparent pressure on the bodies to hold written examinations in all subjects, and particularly in those in which the curriculum test had been imposed, might not with advantage be removed. This suggestion, like the curriculum-test proposal which is presently advocated by the Committee, is permissive in its nature. Teaching and licensing bodies will doubtless take the matter into consideration.

The Place of the Lecture in the Teaching Scheme.

The Education Committee was not unanimous on this subject, some members holding that under present arrangements too much prominence was given to lectures in the curriculum, others, in practically equal numbers, taking the opposite view. The report states the difficulties as follows:—

It is difficult to define the term precisely; that which would be called a lecture when delivered to a large class becomes a demonstration when addressed to a few. In making a choice between the methods everything must depend on local conditions. Whichever line is chosen as the main one in any particular school there is no doubt that the lecture, using the term in its broadest sense to include the

complication to subside rapidly, but that the urethral discharge did not necessarily dry up. On July 6th Mons. E. Fotherat communicated to the Société de Chirurgie de Paris an account of the satisfactory results obtained by the use of propidon (Delbet's bouillon) in six surgical cases (carbuncle, cellulitis, abscess), thereby confirming the favourable reports on its use which have been published by various authorities during the early months of the year. Propidon is a mixed stock vaccine, containing staphylococcus, streptococcus, and *B. pyocyaneus*. It is obtained by prolonged cultivation of these three bacteria; after being stored for a month the cultures are sterilised by heating to a temperature of 65°C., and are finally mixed together so as to obtain a standardised emulsion. According to Professor Delbet² this prolonged cultivation attenuates the toxins to such an extent that the vaccine can be injected in very large doses without toxic symptoms, and a greater amount of immunity is developed. *B. pyocyaneus* is included because its culture contains pyocyanase, a ferment-like substance which possesses the power of destroying other bacteria, and more especially because Professor Delbet has observed that in septic wounds streptococci diminish in number when pyocyanous bacilli become more numerous. Each dose of propidon consists of 4 c.cm. of vaccine, containing 1750 million streptococci, 3300 million staphylococci, and 8000 million pyocyanous bacilli. The vaccine is injected subcutaneously or intramuscularly into the buttock, one to three injections being given at intervals of three days. It would be interesting if the results obtained with various kinds of vaccines could be compared in order to estimate the value of the principles upon which these French stock vaccines are made.

Instruction in Orthopaedics.

Dr. F. Calot, surgeon-in-chief to the Hôpital Rothschild and the Orthopaedic Institute (St. François de Sales) at Berck, is giving a practical course in orthopaedics to which foreigners are admitted from Jan. 17th to 21th, 1921. The subjects to be dealt with are: congenital and acquired deformities, external and surgical tuberculosis, and the practical handling of fractures. Explanations will be given in English and Spanish. The inclusive fee for the course is Fr.140. Application should be addressed to the secretary, Clinique Calot, 69, Quai d'Orsay, Paris.

The Late Professor Debove.

After a long and painful illness Professor Maurice Debove died last week at the age of 75. His career had been brilliant. He received his medical education at the Ecole de la Faculté de Médecine de Paris, and became interne des hôpitaux in 1869, graduating M.D. Paris in 1873. From this time onwards his success as a teacher and his skill as a physician became more and more apparent, until after holding various other appointments he was elected to the chair of pathology in the Faculty of Medicine of Paris in 1890. He filled the offices of dean of this faculty and of consulting physician successively to the Hôpital Beaujon. Member of the Académie de Médecine since 1893, he was appointed its permanent secretary in 1913. He was also honorary president of the Conseil Supérieur d'Hygiène. Professor Debove was the author of numerous publications and of two classical text-books, "Traité des Maladies de l'Estomac" and "Traité de Clinique Médicale," written by him and two of his pupils, MM. Rémond and Sallard. Moreover, he stimulated other pupils to write various manuals under his supervision which have achieved much popularity. Owing to the war Professor Debove was persuaded to postpone his retirement from his offices of professor and consulting physician to the Beaujon Hospital for four years, and only recently severed his connexion with this hospital. He did not live long to enjoy the leisure he had earned, as he was taken ill soon after his retirement, and in spite of an operation his condition became hopeless.

² MM. Pierre Delbet, Beauvy et Glorie: *Injectons thérapeutiques de cultures vieillies*, Bul. Acad. de Méd., 5e Série, t. LXIV, p. 542, 1913.

Public Health.

SCHOOL MEDICAL SERVICE.

Cambridgeshire.

THE work here is still in arrears owing to the depletion of the staff during the war, yet the dental work has gone forward, 8905, or 80 per cent., of the children from the age of 6 to 13 being inspected and 60 per cent. of the 3690 requiring it receiving dental treatment. The percentage of refusals was high (46 per cent.).

As the majority of the children live in remote villages, dental treatment is carried out by means of a travelling clinic, and treatment for visual defect is given on school premises. Children with enlarged tonsils and adenoids are operated on in hospital. The school medical officer, Dr. Frank Robinson, draws attention to the very defective sanitary arrangements in some of the schools. "Most of the schools are provided with bowls for washing, the accommodation being, on paper, more or less satisfactory, but in many it is not made use of, no water or soap being provided, and no arrangements being made for emptying waste water." On the other hand, he points out that in certain schools where the teacher takes an interest excellent use is made of simple appliances. Sanitary discipline in schools is a matter that requires thorough overhauling.

Cheshire.

10,547 children were examined, excluding 12,924 examinations as to visual acuity. Only 1 per cent. of all the children examined were found to have visual defect, "a figure very much lower than any recorded in the latest report of the chief medical officer of the Board of Education." Vertical writing, now generally regarded as of doubtful advantage, is recommended as a means of preserving good vision in children. In his report Dr. Meredith Young reports that out of 4814 cases of uncorrected vision only 4 remained unremedied. Thyroid enlargement has been dealt with by Dr. W. W. Stacey, who found case-incidence greatest at puberty. Out of 1991 children of all ages, 162, or 8 per cent., were found to have enlargement of the thyroid, the affection very often running in families. He also deals in a general way with hypothyroidism, which he regards as far more prevalent in schools than is generally supposed.

Radnorshire.

In this county only 65 per cent. of the children were found in a state of normal nutrition, 9.8 per cent. were poorly nourished, and 24.5 were only fairly nourished. Of the 993 children examined, 80.5 per cent. were found to have good vision, 12.5 per cent. slightly defective, and 12.5 per cent. bad vision, according to Dr. C. J. Thomas's classification of visual defect. Referring to sanitary conditions in schools, Dr. L. W. Polo reports "conditions exist which would not have been tolerated in the front line trenches, where the difficulties in regard to sanitation were incomparably greater." The state of the cloak rooms and school-rooms also calls for remark: "There is not a school in Radnorshire that can be said to be clean."

Leicestershire.

During 1919 a thorough survey of the buildings in this county was made. The bad lighting of the older type of school is said to account for many cases of defective vision. The amount of visual defect is 9.7 per cent. in the intermediate, and 17.7 per cent. in the lever group, making 10.8 per cent. altogether, a strong contrast with the 1 per cent. of Cheshire. Here, again, arrangements for washing in the schools, old and new, seem deplorably inadequate; insufficient cloak-room accommodation calls for special notice. In one school of 122 children the only accommodation available was 99 pegs in a room 11 feet long by 8 feet wide.

Aberdeen.

9460 children were examined, excluding 6551 special cases. The intimate relation between school and home has always been emphasised here. Out of 623 cases

From the annual report of the Vice-Chancellor recently delivered to the Senate it appears that the number of medical students in attendance upon the University in the year 1919-20 was 649, of whom 519 were men and 130 were women. . . . Owing to the pressure upon the accommodation of the University several of the classes have to be divided.—At a meeting of Convocation held on Nov. 17th some dissatisfaction was expressed regarding the financial arrangements affecting the University under the present Home Rule Bill. The sum of £26,000, allocated as an annual grant to the University, is felt to be quite inadequate to meet existing needs and the great increase of the cost of administration owing to conditions created by the late war. University finance is everywhere a pressing problem, and Mr. Fisher, the President of the Education Department, has on several occasions emphasised the need for greater liberality to universities on the part of the State.—Mr. Francis Aders Heron, J.P., has presented the University with a gift of £5000 to assist the University in making provision for the better teaching of physical chemistry.—During the year a new dental department was founded in the University with four lecturers in the various technical branches.

Tuberculosis in Belfast.

The annual report of Dr. A. Trimble, chief tuberculosis officer of the city, covers a large field. In spite of the difficulties which beset a large industrial population, Belfast has made notable progress in recent years in the reduction of tuberculosis. In 1890 the death-rate from tuberculosis was 4·6 per 1000, whereas in 1910 the rate was 2·1 per 1000, a fall of more than 50 per cent. in 30 years. It is only right to point out that this decline began and was progressive before the present anti-tuberculosis crusade was inaugurated. Tuberculosis, as all are agreed, is pre-eminently a social question and intimately bound up with questions of housing, overcrowding, occupation, economics, food, and general hygiene. Osler once said that the amount of typhoid fever in any area was an index of the hygienic intelligence of its inhabitants. The same remark might be made with equal propriety regarding the amount of tuberculosis. Sanatoriums have their value, and the present tendency to belittle their usefulness may easily be carried too far; but their effect upon the prevalence of tuberculosis is, and will continue to be, small. Domiciliary treatment is at best a *pis aller*. Nothing but a resolute policy of social reform and education in the principles of hygiene will successfully grapple with the white plague. Science has put the necessary weapons in our hands, but we have still to learn how to employ them with full effect. Let us never forget that the fall in the tuberculosis-rate in Great Britain began soon after the repeal of the Corn Laws inaugurated the era of cheap food.

Memorial to the late Mr. Robert Campbell, of Belfast.

The medical friends of the late Mr. Robert Campbell have thought it appropriate that steps should be taken to commemorate the pioneer work that he has done for surgery in Ulster. An endowment fund has been inaugurated for this purpose, and at a meeting of the subscribers, held on Nov. 8th, in the Medical Institute, Belfast, it was decided that the memorial should take the form of a prize, to be called the Robert Campbell Memorial Prize, and that this prize should be awarded periodically for distinguished work in any branch of medical science to that member of the profession in Ulster or to that graduate of Queen's University, Belfast, whom at the time the selection was made the committee should consider most deserving of the honour. It was also decided that the award should entail on the recipient the duty of delivering an oration to the profession, to be called the Robert Campbell oration.

The following Executive Committee was appointed: The Professors of Surgery, Medicine, Midwifery, Gynaecology, Ophthalmology, Pathology, Anatomy, and Physiology in Queen's University, Belfast; the President of the Ulster Branch of the British Medical Association, and of the Ulster Medical Society; the chairman of staff of the following hospitals: Royal Victoria, Mater Infirmorum, Queen's-street, and the Ulster; also Dr. John Campbell and Dr. J.

Walton Browne. Dr. James Colville was appointed Treasurer, and Dr. Thomas Houston Secretary.

This Executive Committee was given power to appoint five trustees, two of whom must be general medical practitioners, and, along with the trustees, to award the prize from time to time.

The following subscriptions to the Endowment Fund, totalling over £600, have been already received:—

	£	s.	d.
T. Houston, R. J. Johnstone, R. Johnston (Portrush), J. S. Morrow, T. Sinclair, J. A. Craig, A. B. Mitchell, J. C. Rankin	21	0	0
S. B. Boyd (Dallymore), J. Walton Browne, W. Burns, William M. Burnside, I. A. Davidson (Georgetown), Hart (Measham), James (Huston) (Garrick), J. A. Lindsay, C. G. Lowry, W. G. MacKenzie, H. L. McKisack, T. L. Milroy, W. Monypenny, T. B. Pedlow (Lurgan), A. Gardner Robb, Howard Stevenson, T. D. Warnock (Donesill), Andrew Wallerston, James Colville, S. T. Irwin, W. Porter (Portrush)	10	10	0
S. Blakely, Foster Coates, Sir John Fagan (Monastereran), D. P. Gaussen (Dunmurry), G. St. George (Lisburn), I. R. Greenfield (Holywood), T. S. Holmes, J. B. Johnson (Gillford), W. M. Kallen (St. Instell), B. R. Leatham, C. G. Little, John McCaw, John McCrea (Warravoe), W. R. MacKenzie, A. P. B. Moore, Brice Smyth, M. Brice Smyth, I. Wallace (Knockahollet), R. M. Beatty (Heckmondwood), Robert Hall	5	5	0
Alex. Burns, James A. Clarke (Dunmurry), J. G. Cookson, David Huxy (Bunhill), R. Moreland McCrea (London), R. McDowell, L. Rentoul, W. Smyth (Antrim)	5	0	0
T. D. C. Catbark, S. J. Kallen (Garrick), T. Kallen (Larne), B. Marshall, S. R. Hunter (Dunmurry)	3	3	0
B. Campbell, H. W. Cunningham (Gondolerry), M. K. Irvine (Mount Norris), H. R. Irvine, A. E. Knight (Donaghadee), Joseph Martin (Donaghadee), S. T. Turkington, W. J. Wilson	2	2	0
R. Martin (Banbridge)	1	1	0

Members of the profession who wish to subscribe are requested to send the donations to Dr. James Colville, 7, University-square, Belfast.

Robert Harvey Memorial Prize.

The thirteenth annual award of this prize will be made in July next. The competition is open to students and graduates of less than three years' standing of Dublin schools of medicine. The prize, value £25, is for the best essay evidencing research in animal physiology or pathology. Essays, bearing fictitious signatures, are to be lodged with the Registrar of the Royal College of Physicians of Ireland, Kildare-street, Dublin, on or before June 1st, 1921.

Nov. 23th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Value of Stock Vaccines.

In a recent communication to *Le Courrier Médical* Dr. Maurice Guibert gives the results of vaccine therapy in 30 cases of acute epididymitis treated by dmecon, a gonococcus vaccine which is one of a series of stock vaccines all made on the same principle. The use of stock vaccines is fairly extensive in this country, the most popular ones being known as *dmecon* (staphylococcus) and *dmecon* (gonococcus); satisfactory results have also been obtained with *dmetey*, which is a vaccine against whooping-cough. Some results of the use of these vaccines have been reported from time to time in statistics of the out-patient department of the Pasteur Institute of Tunis. They are made by suspending in dilute sodium fluoride solution a 24 hours' culture grown on a solid medium. *Dmecon* is a mixture of two suspensions, one of a culture of gonococcus and the other of a culture of synococcus, a Gram-positive organism originally described by Ch. Nicolle and L. Blaisot, who think that gonorrhoea may be caused by the simultaneous occurrence of the two organisms. The two suspensions are mixed together, so that 1 c.cm. of the mixed vaccine contains 50 million gonococci and 450 million synococci. The initial dose is 1 c.cm., this amount corresponding to a total of 250 million germs (25 million gonococci and 225 million synococci). Using this vaccine in 30 cases of gonorrhoeal epididymitis, Dr. Guibert has noticed that in all cases it caused the

will be seen; that they have no relevance to the logical doctrine of inherited predisposition. Professor Karl Pearson has pointed out.

Professor Cummins, in theorising about prevention, has, I think, been misled by an analogy. He is conscious of the successes achieved by antityphoid inoculation, and supposes that a similar triumph awaits the immuniser against tuberculosis. There is, I submit, no true analogy. Temporarily to confer upon a physically select group a greater than average power of resistance to a specific infection is an essentially different task from that of permanently elevating the resistance of a whole race. The difference is of kind as well as of degree. There is, I submit, a fundamental weakness in this philosophy of preventive medicine; it is like the difference between the examination coach and the real teacher. A skilful coach can inoculate a pupil up to a high grade of immunity against an ordinary "external" examiner; by so doing he often fulfils a useful purpose. But that more vigilant examiner whose questions are not printed but yet must be answered in the schools of life is not so easily baffled.

Shoemakers die of tuberculosis at 4½ times and commercial clerks at 3½ times the rate of clergy. I do not suppose Professor Cummins believes that the immunisation of the children of clergy through the greater supply is so efficient as to explain these contrasts. As a bacteriologist, he will rightly appeal to the greater opportunities of massive infection enjoyed by factory operatives and clerks in crowded offices. May not even this be somewhat too simple an explanation? Vocational selection is after all a fact; I do not think my father could have persuaded a blacksmith to take me as apprentice. Nobody is concerned to explain away the fact that normal physical characters are inherited. In all parts of Austria, rural districts and the crowded capital alike, the mortality from phthisis has risen year after year since 1915. I suggest that the variations of natural resistance and the general lowering of the average of resisting powers due to an unphysiological way of life must be studied, that no ingenious short cuts to the solution of the problem of great plagues are available. Dr. Leonard Hill has shown how, quite apart from any factor of massive specific dosage, natural resistance to one but to all infections may be the explanation of what Dr. Hill has shown may be the explanation of what we find, is indeed the explanation, can be ascertained by the methods of the "unintelligible" biometricians; not quickly nor easily, but securely.

I do not intend to be a newspaper pessimist, but the survivors of a great war, which has destroyed a considerable percentage of the physically select males, and of the second greatest pestilence in history, who read day by day of famine and sickness throughout large tracts of Europe, will do well to doubt whether security can be purchased on cheap terms. "Preventive medicine," says Sir George Newman in his first report, "is concerned with the physiology and psychology of man even more than with the physical form or end-results of disease, and to deal with it effectually involves dealing with all its aspects continuously."

I am, Sir, yours faithfully,
MAJOR GREENWOOD.

Loughton, Nov. 29th, 1920.

COELIAC DISEASE.

To the Editor of THE LANCET.

SIR,—In answer to Dr. R. Armstrong's letter, published by you on Nov. 13th, I must express my concern at having in my recent paper¹ appeared by Dr. F. J. looked the important communication by Dr. F. J. Poynton, Dr. D. N. Nabarro, and himself, entitled "A Contribution to the Study of a Group of Cases of Chronic Recurrent Diarrhoea in Childhood."² I can assure you that I had studied it with care and made no mention of it because I understood that the whole point of his contribution lay in the supposition that his cases were not essentially instances of coeliac disease, but were cases of organic intestinal disease upon which a possible coeliac (acholic) element was superimposed.

The relationship of the cases in Dr. Armstrong's paper to true coeliac disease is a matter of great concern to those working at the subject. Setting aside the true but rare cases of pancreatic infantilism described by Bramwell,³ it would seem that we have three groups of cases showing pale fatty diarrhoea, enlargement of the abdomen, and, if the diarrhoea persists long enough, retardation of growth.

1. Cases in which the true coeliac (acholic) element is the primary disturbance. This I take to be a functional derangement for reasons which I will give later; and I suppose that bile-salt secretion or circulation is at fault. This group is the true "coeliac affection," as described by Gee,⁴ who noted that there were no obvious causative lesions to be found after death.

2. Cases in which as the result of the coeliac disorder there develops a secondary enteritis set up by the abnormal condition of the contents of the bowel. This group is at present hypothetical only, but should it exist it would be included under the true coeliac type.

3. Cases in which the primary disease is an organic disease of the bowel, which may by itself set up fatty diarrhoea, or to which the coeliac derangement may be added. To this group the first case in Dr. Armstrong's paper belongs; the symptoms, treatment, and pathology all prove this, and the reader is led to infer that in the authors' judgment the remaining cases described are essentially similar. But this, I think, is not coeliac disease, and in 1913 the authors went out of their way to avoid the use of that term, as witness the title of their paper. The question arises, What can we call such a case as their fatal case? I should prefer to call it "intestinal infantilism," using Hertler's term⁵ without agreeing to his theory of the specific bacterial causation of the enteritis.

The crucial matter of the discussion is this: Was Geo correct when he stated that the coeliac affection might persist and produce stunting (for he described this vividly) without there being any recognisable causative organic disease? I think he was, and for this reason. I see no essential difference between temporary cases of coeliac stools, protracted cases, and persistent cases leading to infantilism. (a) Temporary cases. Acholic stools may be passed for a few days—e.g., with dentition (see Cheadle,⁶ Case 5). (b) Protracted cases. Cheadle's Case 3 had coeliac symptoms for two years, but Dr. Rudd kindly tells me (October, 1920) she got quite well and developed normally after a year, got quite Praagh's case,⁷ after symptoms lasting over a year, got quite well, the author informs me. (c) Persistent cases with infantilism. In an unrecorded case of my own symptoms had been present for nearly five years, the child had been under observation for three years, was considerably stunted in growth, and had suffered from oedema of the extremities during acute attacks of diarrhoea; yet after death no chronic changes were found in the pancreas, liver, or intestine to account for the symptoms.

A further point in favour of the functional origin of the essential coeliac derangement is that it is at present impossible to correlate coeliac disease with any type of organic hepatic disease; nor do we find in cases of advanced hepatic disease the presence of coeliac symptoms.

I trust this letter will assure Dr. Armstrong that it was not without deliberation that I omitted reference to his cases; but because in dealing with coeliac disease from the points of view of its fat-digestion and treatment by bile-salts, I thought it safer not to refer to cases which appear to be, and were, as I thought, published as being, allied to, rather than true instances of this disorder.—I am, Sir, yours faithfully,
REGINALD MILLER.
Harley-street, W. Nov. 2nd, 1920.

References.—1. THE LANCET, 1920, ii., 891. 2. Brit. Jour. Child. Dis. 1914, xi., 145 and 153. 3. Clin. Stud., Edin., 1902-3, 157. 4. St. Bart. Hosp. Rep., 1888, xxiv., 17. 5. Infantilism from Chronic Intestinal Infection, 1908. New York. 6. THE LANCET, ii., 1497. 7. THE LANCET, 1904, i., 224.

MALIGNANT GROWTHS OF THE ANTRUM.

To the Editor of THE LANCET.

SIR,—On one point my experience hardly agrees that of Mr. E. D. Davis, who, in his very interesting article in your issue of Nov. 27th, says that in operation on the maxilla, the horizontal limb of Ferguson's classical incision did not give much more access to the operative area than was provided by the vertical alone. But my present object is to refer to a case in which the consequent occurrence of infra-orbital may be circumvented—a small technical refinement.

examined by the school oculist 513 were found to require spectacles. Atropine was used only in 40 per cent. of the cases, and the number examined per hour was 519. There seem to be very good bathing and swimming arrangements, 1320 children from various schools attending the school baths during the summer vacation. In connexion with sanitary conveniences in schools Dr. G. Rose reports that "the hygienic conditions of those of even our best schools is not equal to what exists in the poorest homes. This should not be."

Rutland.

1120 children were examined during the year, excluding 905 re-examinations. Of these, 11 were special cases. Only 8 cases of rickets were noted. Poor nutrition was found in 7 per cent. of the cases examined, 66 per cent. of the parents attended medical inspections, and Dr. C. Rolleston asserts that no other education authority in Great Britain obtains better results. Dirty heads were found in 10 per cent. and dirty bodies in 15 per cent. "No school nurses were employed during the year, and better results in cleanliness, number of children treated, and number of parents attending inspections were recorded than ever before."

URBAN VITAL STATISTICS.

(Week ended Nov. 27th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 11.8, 13.4, and 12.8 in the three preceding weeks, rose to 13.5 per 1000. In London, with a population of nearly 4 million persons, the annual death-rate was 14.1, or 0.5 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 6.0 in Newport (Mon.), 6.5 in Eastbourne, and 6.6 in Ilford, to 20.7 in Cambridge, 23.1 in York, and 23.2 in Stockton-on-Tees. The principal epidemic diseases caused 239 deaths, which corresponded to an annual rate of 0.7 per 1000, and included 93 from infantile diarrhoea, 67 from diphtheria, 35 from measles, 21 from scarlet fever, 20 from whooping-cough, and 5 from enteric fever. Measles caused a death-rate of 1.7 in Walsall and diphtheria of 1.2 in Stockport. There were 5575 cases of scarlet fever and 2626 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 5610 and 2563 respectively at the end of the previous week. The causes of 34 of the 4623 deaths in the 96 towns were uncertified, of which 5 were registered in Birmingham, 4 each in South Shields and Tynemouth, and 3 each in Bootle and London.

Scottish Towns.—In the 16 largest Scottish towns, with an aggregate population estimated at nearly 2 million persons, the annual rate of mortality, which had been 14.7, 14.3, and 13.6 in the three preceding weeks, rose to 14.3 per 1000. The 305 deaths in Glasgow corresponded to an annual rate of 14.3 per 1000, and included 5 from infantile diarrhoea, 3 from whooping-cough, and 1 each from enteric fever, small-pox, and diphtheria. The 36 deaths in Edinburgh were equal to a rate of 14.7 per 1000, and included 2 from infantile diarrhoea and 1 from scarlet fever.

Irish Towns.—The 125 deaths in Dublin corresponded to an annual rate of 15.7, or 3.4 per 1000 below that recorded in the previous week, and included 5 from infantile diarrhoea, and 1 each from whooping-cough and diphtheria. The 111 deaths in Belfast were equal to a rate of 14.0 per 1000, and included 5 from infantile diarrhoea, 2 from diphtheria, and 1 each from enteric fever and scarlet fever.

CONTRIBUTIONS TO HOSPITALS AS AN INSURANCE.

At a recent annual meeting of the Court of Governors of the Royal Hospital for Diseases of the Chest, Mr. Stuart de la Rue said that the system of payments by patients would have to be introduced in the near future. He suggested that the best method of preserving the voluntary system would be to persuade the community during the time that they were in good health to make contributions to the hospitals in the form of insurance against sickness, and thus become entitled to attendance.

UNIVERSITY OF LEEDS: APPEAL FOR £500,000.—In the interests of higher education the University of Leeds has issued an appeal for public support, and at a meeting held in the Leeds Town Hall on Nov. 23th the Vice-Chancellor, Sir Michael Sadler, announced that £112,800 had been received or promised towards the £500,000 required. The number of students attending the University is three times as large as before the war, and new laboratories or buildings are required in nearly all departments, including those of medicine and dentistry.

Correspondence.

"Andi aliorum partem."

ETIOLOGY OF TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—If this discussion is to be of value, we must, I think, clearly understand what are the points at issue. Professor S. Lyle Cummins made two contributions to the literature of, I think, unequal importance.

In the first place he provided new and valuable illustrations of the very old principle that the incidence of an infective disease upon a population not previously exposed tends to be very heavy. This stock illustration is, of course, measles, while some of the observations made upon the pneumonia of native labourers in South Africa are recent and relevant examples. But Professor Cummins's instances are important because in the familiar example of measles it is possible to doubt whether the exceptional severity of the disease amongst the Polyynesians were not really due to the inadequacy of the treatment of the sick; this objection does not apply to Professor Cummins's data of army phthisis.

In the second place, Professor Cummins embarked upon a general theoretical discussion and here, as I think, he was less successful. Professor Cummins's account of the historical doctrine of phthisis is inadequate. For this Professor W. Bulloch and I are perhaps to blame, we scarcely did justice to the early literature. In effect, the doctrine of the ancient physicians—as expounded by Galen—was perfectly consistent. It envisaged three factors of all disease: (1) the make up of the body, its crasis; (2) such habits and customs of life, the procataretic factors, as lowered the bodily resistance to all forms of disease; (3) the specific factor or "seed of pestilence." It was supposed that (1) was subject to natural, innate and heritable variations, and might be modified by the operation of (2). Various attempts were made (notably by Galen in the *De Temperamentis*) to correlate external objective characteristics with innate predispositions—i.e., particular "crases" or "temperaments." The phthisical type is a particular case (not, so far as I recollect, discussed in *De Temperamentis*). A diathesis was a deviation imposed upon the innate crasis from without.¹

The point is not a mere question of historical minutiae; it is that the general content of opinion down to a time within the memory of those very recently living was perfectly consistent in regarding the whole problem of disease as unitary, the emergence of any particular disease as conditioned by the innate crasis (with the obsolescence of the elemental theory the word crasis naturally became obsolete and was replaced by predisposition or habitus) and the totality of external factors, of which specific infection was one. The apparent diversity, shown in the quotations contained in Bulloch's and my paper, is very largely verbal. Sir James Clark, writing in 1835, says:—

"If a more healthy and natural mode of living were adopted by persons in that rank of life which gives them the power of choice, and if more consideration were bestowed on matrimonial alliance the disease which is so often entailed on their offspring might not only be prevented, but even the predisposition to it extinguished in their families in the course of a few generations."²

Galen in the second century would have put more emphasis upon the "healthy and natural mode of living" and less upon the inheritance of a crasis, but he would have admitted both factors, and, perhaps, added a "seed of pestilence." In our own time, not by any means all, but certainly the most influential, physicians have inserted the specific element (denied by Sir James Clark, but admitted by Galen) and attributed to it far more importance than to either of the others. Professor Cummins takes a similar course. That none of the facts he adduces are in the least inconsistent with the ætiological concepts of the older physicians

¹ See Galen, *De Sympt. Causis*, Kneeb's edition, vi., p. 229.
² Treatise on Pulmonary Consumption, 1835, p. 252.

Parliamentary Intelligence.

HOUSE OF COMMONS.

MINISTRY OF HEALTH BILL.

THE Ministry of Health (Miscellaneous Provisions) Bill was considered by Standing Committee A of the House of Commons on Wednesday, Nov. 24th. Sir WILLIAM PEARCE presided.

Treatment of Incipient Mental Cases.

Clause 10 of the Bill, which deals with treatment for incipient mental disorder, provides that:—

"(1) Notwithstanding the provisions of any Act a person shall not, if the required conditions are complied with, be liable to any penalty for receiving to board, lodging, or taking charge of for a period not exceeding six months, or such longer period not exceeding in all twelve months as may be approved by the Minister, and whether for payment or not, any person suffering from mental disorder which is incipient in character and of recent origin, but not being a person who has been certified as a lunatic under the Lunacy Act, 1890 to 1911, or in respect of whom an order has been made under the Mental Deficiency Act, 1913:

Provided that nothing in this Section shall authorise any person who has been received into any institution, home or house under this Section to be detained therein if he delivers to the superintendent or other person, by whatever name called, having charge of the institution, home or house, or sends by post to the Minister, notice in writing that he desires to be discharged therefrom.

(2) The required conditions for the purposes of this Section are as follows:—

(a) The institution, home or house in which the person is received must be approved for the purposes of this Section by the Minister:

(b) No such person shall be received into the institution, home or house except with his previous consent in writing and except on a certificate in writing by two duly qualified medical practitioners to the effect that that person is reasonably likely to benefit by treatment therein:

(c) The superintendent or other person, by whatever name called, having charge of the institution, home or house, shall on the demand of any person having authority to inspect the institution, home or house, produce all such written consents and certificates as aforesaid:

(d) The reception under this Section of any person into the institution, home or house shall be reported to the Minister by the superintendent or other person aforesaid.

(3) Any institution, home or house approved by the Minister under this Section shall be periodically inspected by officers appointed for that purpose by the Minister.

(4) The Minister may make regulations for the purpose of carrying this Section into effect.

(5) If any person acts in contravention of or fails to comply with any regulations made by the Minister under this Section, or details any person or otherwise acts in contravention of the provisions of this Section, he shall be liable on summary conviction to a fine not exceeding one hundred pounds or to imprisonment for a term not exceeding six months or to both such fine and imprisonment."

Mr. THOMSON moved an amendment to leave out the words "for a period not exceeding six months or any longer period not exceeding in all 12 months as may be approved by the Minister and whether for payment or not." He submitted that the clause as it stood made contradictory reading. They all realised the absolute necessity of doing something at once for these shell-shock cases and nervous disorders which were the result of the war, in addition to the large number of mental disorder. There must, however, be incipient signs of mental disorder. There must, however, be no compulsion, and if the second part of the clause was to be effective patients must be able to leave when they liked. They were suspicious of the working of the Lunacy Law. These cases should be dealt with on the same lines as ordinary physical ailments. An atmosphere of freedom was necessary to their recovery.—Dr. ADDISON said he sympathised with the objects of the honourable Member, but he did not quite see how he was achieving them by this amendment. There were a number of amendments on the paper designed to secure real freedom for the patients, a considerable number of which he hoped the Committee would accept. The amendment was withdrawn.

Dr. ADDISON accepted an amendment, moved by Mr. C. EDWARDS, to limit the period to six months. Every case, he said, would be reviewed at the end of that period.—The amendment was agreed to.

Earl Winterton's Amendment.

Earl WINTERTON moved to leave out the words "whether for payment or not." He thought that in all institutions for the treatment of disease, whether mental or other, the ideal to be aimed at was the institution which made no profit out of its patients. A great friend of his was literally killed by the treatment he received in a nursing home. Scandals had been shown up from time to time in the case of these private nursing homes. There was an unfortunate lady whose case attracted considerable attention some time ago. She wrote two articles under a nom de plume in which she showed how she had been an ordinary inmate of a so-called mental hospital, the sort

of "rest-cure" hospital which he assumed would be contemplated under this clause. He thought the evidence she brought forward was indisputable that she was really treated extremely badly. He would quote from a letter which she had written to him on the subject. She said that while a so-called voluntary inmate of a mental hospital of the highest standing, and while under the "protection" of the highest safeguards as were proposed in the new Bill, but of Section 315 of the Lunacy Act, 1890, she was not only of such safeguards as were proposed in the new Bill, but of complete impunity certified and incarcerated easily and with complete impunity by pre-arrangement. That in that institution as a lunatic by pre-arrangement, kind of case might easily arise when they had a system of homes run for profit. The lady he had mentioned was asked to sign a document when she arrived at the hospital in a very nervous state. She did so, but she did not know that the document would afterwards be used as evidence of her consent to enter the home. He could not see that these safeguards would prevent abuses. The whole idea was repugnant to him, especially where ex-soldiers were concerned.

Dr. ADDISON said he entirely agreed with the noble lord's general proposition, and he welcomed such a statement from him very much, especially as he was intimately associated with the voluntary hospital movement, and in general disliked the idea of a profit being made out of this class of patients. But they had to deal, not with something that they would like, but with something that they had actually got. In the vast majority of ex-Service cases, it would be a payment in respect of services rendered. It would be the Ministry of Pensions that would make the payment in respect of ex-Service men still under their care. As to scandals, he did not know anything about the particular case to which the noble lord referred, but he knew well enough that under any imaginable statute cases of that kind would arise. The Government's plan was to avoid, as far as was humanly possible, wrong arising. A very large percentage of men suffering from incipient mental disorders were cured within six months. He was afraid it was quite impossible to face the facts and not to recognise that in a considerable number of cases, whether there was a profit or not, some payment would be made in respect of the treatment; otherwise they would enormously limit the use to which this clause could be put.

Lieutenant-Colonel NATHAN RAW said he wished early treatment to be given to prevent the mental disorder becoming incurable. Although they would all like to be philanthropists, and to treat all cases of incipient mental disorder without a profit, it was obvious that it could not be done. The only alternative was for the State or the proper authority to deal with all these cases. In the course of six months it could be seen whether a case was going to be cured or to pass into the state of lunacy. In 99 cases out of 100 the patient's liberties would be carefully looked after.

Major FARQUHARSON thought that the question of profit was an important point. A voluntary boarder who had gone into one of these homes had in a measure pleaded guilty, as it were, to being of an unsound mind. There was a prejudice of their case to begin with, and it only required a small degree of eccentricity or mental aberration or deviation from normal conduct on the part of the patient for one or two learned gentlemen—medical men—and the person who honestly regarded himself as taking charge in the legal sense of that individual to get him certified insane. There was therefore a very real danger. All these dangers could be dealt with by the simple expedient that before that person was certified a lunatic a report must be submitted in writing to the Minister of Health.

Lieutenant-Colonel FREMANTLE thought that the treatment of these diseases as ordinary diseases in general hospitals could not be considered the ideal and proper or normal course. Those who had had experience of a good many general hospitals knew that, whereas formerly they had their lunatic wards, it had now become necessary to exclude mental cases from ordinary cases for reasons that everyone could understand. Surely the ideal condition of affairs was that which with great satisfaction they had seen developed during the last 10 or 20 years—namely, that lunatic asylums should no longer be asylums where people were shut up for the protection both of themselves and of the public (which was the basis of the Lunacy Laws), but that they should be mental hospitals with a view to general treatment, improvement, and recovery with as little delay as possible. He had with him a report of the Committee of the Association of Medical Psychologists, a body which might be taken to hold the approved and recognised scientific views of those who dealt with these matters. The report was dated 1918 and contained proposals which definitely aimed at a system of voluntary boarders in mental hospitals. There were difficulties in the way, but they would all agree that the ideal thing was to have a suitable registered hospital, or private home, undertaken by people as an act of philanthropy to which patients could be sent. The actual facts

which was, I believe, first demonstrated to me by Mr. Wilfred Trotter.

In the modification to which I refer, the horizontal diverges from the vertical limb of the incision in the usual manner; but only for about half an inch. As soon as it has passed outwards in the skin to a point beyond the punctum lachrymale, the knife is carried through the lower tarsal plate into the lowest level of the conjunctival fornix, straight down to but not through the perosteum of the malar bone. The incision is continued outwards in this layer as far as desired, and the lower eyelid, except for its median quarter or third, is stripped outwards with the cheek. The cut surfaces of the tarsus are afterwards accurately apposed by three or four stitches of ophthalmologists' salmon-gut or horsehair; the conjunctival fornix may require a couple of fine catgut stitches, but usually falls into place without any. The usual stitches in the skin of the vertical and of the innermost half-inch of the horizontal limb keep the parts so well in place that there is no strain on the fine tarsal sutures; and in the end-result there is no cosmetic or functional damage. I have adopted this device not only for tumours of the antrum, but also on one occasion to obtain access by the naso-antral route for the removal of a pituitary tumour. The case was reported in THE LANCET of July 5th, 1919, and to-day the patient is in perfect health, with no facial disfigurement.

It is noteworthy that this manoeuvre eliminates the subsequent incidence not only of the cutaneous infra-orbital oedema, but also of the usual conjunctival chemosis. I am, Sir, yours faithfully,

Wimpole-street, W., Nov. 28th, 1920. H. LAWSON WHALE.

THE DANGER OF SELF-ADMINISTRATION OF NITROUS-OXIDE GAS.

To the Editor of THE LANCET.

SIR,—In view of a recent fatal accident resulting from the testing of a cylinder of nitrous-oxide gas by self-administration, we think it right to bring this danger to the knowledge of those interested in the administration of anaesthetics.

One of us (J. D. H.) called at the dentist's house to administer gas to a patient, and on entering the consulting-room found the dentist dead in his operating chair with the mask applied to his face. The head had fallen forwards and sideways over the arm of the chair and was resting upon the gas-stand while the cylinder was still supplying gas. At the inquest it was stated that the dentist at times tested the apparatus by inhaling the gas previous to its use for an operation.

We believe it to be a common practice among dental surgeons occasionally to take a so-called "whiff," sufficient only to cause partial unconsciousness. Several cases are known to us where this has been done by the surgeon while standing in the upright position, the result being a heavy fall on the floor. The mask being fortunately displaced, there followed a return to consciousness. But if the inhalation, as in this case, be taken while lying down there is a danger of complete unconsciousness supervening, when tonic muscular spasm may retain the mask in position until fatal asphyxia occurs.

The self-administration of nitrous-oxide gas is stated to afford a very pleasurable sensation, and this fatal case should be a warning that the practice is not devoid of grave danger. Sir Frederic Hewitt has reported a fatal instance! We shall be glad to hear of any other such cases.—We are, Sir, yours faithfully,

JAMES DONALD HOLMES, M.B., C.M.
HEDLEY C. VISICK, M.R.C.S.,
Anaesthetist to the Hampstead General Hospital.

Nov. 21th, 1920.

THE LATE LEONARD GUTHRIE.

To the Editor of THE LANCET.

SIR,—Recently you published a letter asking for a photograph of the late Dr. Leonard Guthrie. I am glad to say that two copies have been obtained, one a

recent full-length snapshot, but unfortunately taken in strong sunlight, and the second a photograph taken many years ago. Both of these have been enlarged, and any of your readers may obtain copies from me, the price being 12s. 6d. each.

I am, Sir, yours faithfully,

H. W. BURLEIGH,
Secretary and General Superintendent, Hospital
for Epilepsy and Paralysis.

Maida Vale, W., Nov. 25th, 1920.

ACIDOSIS AND BEE-STINGS.

To the Editor of THE LANCET.

SIR,—In his clinical note which appeared in your issue of Oct. 23rd Dr. J. O. Beven expressed the opinion that certain patients of his who were stung by the rock bee, *Apis dorsata*, developed an acidosis, and he treated them accordingly. In commenting upon Dr. Beven's observations you suggest in an annotation that the condition described was not an acidosis due to the formic acid of the bee-sting, but more likely was a severe toxæmia due to the specific toxalbumin in the bee-sting.

Crile, in his excellent book on "Surgical Shock," has thrown much light on the causation and pathology of shock. He has shown that shock is produced by an intensification of the everyday causes of fatigue, and that such shock is due to an excessive amount of nociceptive stimuli reaching the brain cells. These stimuli of a harmful nature to the animal organism are produced (1) in muscular exertion; (2) in emotional excitation, (3) in physical injury, (4) in anaphylaxis, (5) in injection of foreign protein, (6) in injection of various toxins, (7) in injection of acids, and in several other conditions.

It was also shown that any one of these factors, per se, if intense enough, produced shock of some degree or other, and that if any of the above factors occurred simultaneously the added result was a marked degree of shock. However, the interesting point is that in shock produced by any one of these causes there was a concomitant intracellular acidosis, which acidosis was measured and proved to be present by the diminution of the reserve alkalinity and an increase in the hydrogen-ion concentration of the blood.

Applying all this to the cases in point, the victims of the bee-stings were rock climbing, which induced a certain amount of muscular fatigue, the numerous bee-stings caused intense pain stimuli, no doubt there was an emotional element of fear, and there was an injection of acid, toxin, and foreign protein in each sting. Added together, these nociceptive stimuli were probably sufficient to cause profound shock, with an intracellular acidosis, and therefore Dr. Beven's treatment was sound and rational and his diagnosis correct.

I am, Sir, yours faithfully,

A. D. SYMONS, M.B., Ch.B., D.P.H.,
House Physician, Royal Hospital for
Sick Children and Women, Bristol.

Nov. 25th, 1920.

NATIONAL RELIEF FUND HOSPITAL GRANT.—The Executive Committee of the National Relief Fund have appointed a special committee to advise them as to the distribution of the English and Welsh share of the grant voted towards the reduction of the war deficits of the voluntary hospitals of the United Kingdom. The total grant is £700,000, and the amount applicable to England and Wales is £560,000. The Distribution Committee consists of Sir George Murray (chairman), Sir Napier Barnett, Rev. C. B. Cronsshaw, Miss Mary Macarthur, Sir Arthur Robinson, and Viscount Sandhurst. Since the amount available will not be sufficient to allow of all deficits being paid off in full, the committee of the Fund have decided that assistance must in general be limited to hospitals having a resident medical staff and at least 50 beds. In special cases, however, the Distribution Committee have a discretion to recommend grants to hospitals with less than 50 beds. No grant will be made in cases where the deficit for the five years ending Dec. 31st, 1919, is less than £500, and cottage hospitals, convalescent homes, and sanatoriums are definitely excluded. Application forms have now been issued to all hospitals eligible for assistance.

Lieutenant-Colonel FREMANTLE: Will it include Ireland?

Dr. ADDISON: I do not suggest that. It is only Great Britain. Continuing, the right honourable gentleman said he hoped that the Committee would agree to delete the portion of the clause which empowered county councils to contribute out of the rates to voluntary hospitals, in order that the ground might be cleared for the inquiries of this Committee, and in order that they might have a free hand. He hoped that they would have the goodwill of the British Hospitals Association and other organisations representing hospitals, in order to secure the expeditious working of the Committee. He proposed that the Committee should consist of five members, and that none of them should be a medical man, or anyone connected with hospital management.

Poor-law Hospitals.

They had had reports ad nauseam on Poor-law questions for many years. He did not see that any good would be done by further inquiries. The Government, however, had given an explicit pledge to the electors at the last election that they would transform the Poor-law. They could not deal with health services in any comprehensive form without dealing with the Poor-law. They must see that they took action on the right lines. There were 54 Poor-law hospitals separate from the other Poor-law institutions of the country, and some were very excellent. Out of the 90,000 odd Poor-law beds there were on the average 30,000 empty all the year round. They must try to make the best use of these beds. There were 635 different Poor-law authorities, and what they did for one they must do for all. The empty beds were empty in the main because people had a vehement objection to going into a Poor-law institution. They must have a big authority in charge of hospital management. There were not staffs available for a system involving the endless multiplication of authorities, and in any case such a system would be a great burden on the rates. They must have an authority not tied to the needs of a particular district but able to take a wide view of the needs of the community. Therefore the unit of Government could not be less than a county borough council or a county council. Besides, it was necessary to link up with the hospitals the higher teaching institutions and scientific services, and these could not be organised in terms of hundreds of small authorities. There was no class of the community more in need of skilled medical services than the middle class. It was quite impossible for the Ministry of Health to stand by and see this waste of accommodation while there were multitudes of people who were suffering for the lack of it. Therefore he hoped the Committee would support him in making available in some practical fashion the empty beds in our Poor-law institutions.

Mr. SWAN complained of the gross inequalities of the voluntary system, and said that he thought these health questions ought to be undertaken by the State. He thought it would be impossible to get an impartial inquiry.

Earl WINTERTON withdrew his amendment.

Dr. ADDISON moved an amendment to omit from the clause the proposal empowering county councils to supply and maintain hospitals, and to authorise them "to acquire by agreement with any Poor-law authority, any Poor-law hospital or infirmary belonging to that authority, within their area, and maintain the same as a hospital." He explained that this limitation of powers was in accordance with the pledge he had given to the House.

Colonel LAMBERT WARD opposed the amendment on the ground that it would interfere with the working of the ordinary voluntary hospitals. Practically every leading surgeon and physician was at present on the staff of those hospitals, and rendered invaluable services for nothing. He was afraid if it was once recognised that hospitals were national institutions supported by the rates these gentlemen would expect to receive some remuneration for their services. If he were to have an operation he would be charged 100 guineas or more, but it was some satisfaction to know that the man at the other end of the knife was not going to make the hopeless mess of him that he had probably made of the first man he had experimented on.

Earl WINTERTON interposed to protest against the honourable Member's remarks. If it was intended as humour he thought it was rather a poor sort of humour. To suggest that a surgeon made a mess of even his first operation was quite untrue. No surgeon was allowed to operate until he was as skilful as he could possibly be in his profession.

Colonel LAMBERT WARD: I am sorry the honourable and gallant Member has taken my remarks so seriously. I merely expressed the satisfaction I felt that I was not the first person to be performed upon. If he will accept that apology I shall be glad to tender it. Continuing, the honourable Member said he considered that the National Insurance Act should be amended to cover hospital treatment as well as ordinary medical treatment. Instead of "ninepence for out-patients" they might give "tenpence for fivepence" or "one shilling for sixpence."

Mr. ORMSBY-GORE also opposed the amendment, which, he said, created a revolution in our existing system, because it said for the first time that it should be the duty of the county authority to provide treatment for illnesses and diseases generally, or treatment of any particular illnesses or diseases or classes of illnesses or diseases. It might be described as "legalising Bradford." He objected to breaking up the Poor-law piecemeal.

After further discussion the Committee agreed to the amendment by 23 votes to 7, after which they adjourned.

WEDNESDAY, NOV. 24TH.

Ministry of Health Publications.

Captain TEDOR-REES asked the Minister of Health if he would state how many persons were engaged in the preparation and circulation of the publications issued by his department; and whether, with a view to a reduction in expenditure, a large number of them could be discontinued.—Dr. ADDISON replied: The preparation and circulation of the publications issued by the Ministry of Health forms only a small part of the ordinary duties of the staff of the Ministry and is not allotted to a special staff. Very substantial curtailments have recently been made in this direction.

Lunacy Act, 1890.

Mr. MYERS asked the Minister of Health whether he would take steps to have posted up in the waiting-rooms of all public asylums Section 79 of the Lunacy Act, 1890, which gives a relative or friend of the pauper patient the right to claim that the patient be delivered over to their care on their undertaking responsibility in regard to him that he shall not harm himself or others or become chargeable to any union.—Dr. ADDISON replied: This suggestion is at present under the consideration of the Board of Control, who have recently directed certain inquiries in the matter.

Lunacy Documents.

Mr. TRYON WILSON asked the Minister of Health whether, in view of the possible risk to the security of integrity of the official documents upon which any person was committed to an asylum, he would take steps to ensure by regulation or otherwise that henceforth the originals of such documents should, immediately upon their delivery to the manager of the asylum, be forwarded by him to the Board of Control for safe keeping; that the said Board supply to him by return copies of these documents certified as true copies by two of the Commissioners, which copies should serve, instead of the originals, as the authority for his detention of the patient, this regulation being rendered necessary by recent admitted instances of such documents having been tampered with; and would he say where, in the case of the extinction of a licence, such documents had been preserved up to the present.—Dr. ADDISON replied: The custody of the documents to which the honourable Member refers is governed by the provisions of the Lunacy Act, 1890. If the honourable Member will give me any information that is at his disposal as to any alleged tampering with documents I will make immediate inquiries into the matter.

Eyesight and Film Production.

Commander VISCOUNT CURZON asked the Minister of Health whether the Actors' Association recently drew his attention to the extreme power of lights used in film-production work and to the resulting danger to eyesight therefrom; and what action he had taken in the matter.—Dr. ADDISON replied: My attention has been drawn to the representations made by the Actors' Association in the matter, and I have asked the Committee on the question of the Causes and Prevention of Blindness which is now sitting to consider the matter and report.

VISCOUNT CURZON: If the Committee report to the effect that there is danger to eyesight, will the right honourable gentleman's department take action?—Dr. ADDISON: I had better see what they report first.

Empty Beds in Poor-law Institutions.

Sir CYRIL CONN asked the Minister of Health whether the estimate of 30,000 empty beds in Poor-law institutions referred to the whole of the country; on what date were such beds empty; and whether he would state the number of empty beds, excluding emergency beds, on Jan. 31st and July 31st in each of the years 1918, 1919, and 1920 for London and for the rest of the country, respectively.—Dr. ADDISON replied: The estimate of 30,000 empty beds related to the whole of England and Wales and was based on information obtained within the last few months. This estimate refers to hospital beds only. The total number of empty beds of all kinds in Poor-law institutions is much larger. I cannot give the figures for the earlier years, but there were approximately 15,000 empty beds of all kinds in London and 89,000 in the rest of the country on Jan. 31st last, and 14,000 in London and 91,000 in the rest of the country, on July 31st.

Dr. ADDISON said that these services such as maternity and child welfare, tuberculosis, and so on, involved in most cases only a halfpenny rate and rarely exceeded a penny rate. Everything was based on the way things were arranged. Everyone felt the importance of making no false step in this matter, which affected the voluntary hospitals, and it was only fair to say that by the efforts of the Ministry they had made a material contribution to their assistance during the past few months. Nevertheless, the other day during a meeting of Members of Parliament of both Houses, and he had seen the Chairman of the Committee, Mr. Midlam, and Sir Arthur Stanley, Chairman of the British Hospitals Association, who urged very strongly upon him that they wanted above all things to sustain the voluntary hospitals if they could do so. As he had said, he thought that a great deal could be done by co-operation and sometimes characterised these institutions which were pointed out that between now and a few months hence the amount from contributions from the rates was likely to be very great. He thought that was a fair statement. In a letter which he had received from Mr. Midlam it had been urged that he should appoint a small and impartial committee to inquire into the financial matters and report in a few months' time on the financial matters of the voluntary hospitals throughout the country. In order that the report might be presented as soon as possible the inquiry would have to be a committee "to inquire into and to appoint forthwith a committee of the voluntary hospitals report upon the financial position of the voluntary hospitals throughout the country and make recommendations."

re-exported. The extension to other countries of a similar system of certificates is at present the subject of negotiations.

Pensioners and In-patient Hospital Treatment.

Mr. CAINNS asked the Minister of Health if he was aware of the long waiting period of war pensioners in getting into hospitals for treatment as in-patients; and, if so, would he press for the extension of hospital accommodation for such pensioners.—Mr. MACPHERSON (Minister of Pensions) replied: I am glad to inform my honourable friend that recent extensions of in-patient accommodation have, to a large extent, removed the difficulties which unfortunately existed some months ago. Further accommodation is being provided which should enable all demands for in-patient treatment to be met without delay.

Hygiene of Food and Drink.

Sir WATSON RUTHERFORD asked the President of the Board of Education whether the Board of Education was responsible for the preparation of the hygiene of food and drink, being a pamphlet entitled "The Syllabus of Lessons for Use in Schools, and Notes for the Assistance of Teachers"; whether he was personally aware of the contents of such syllabus; and whether he considered it any part of the duty of the Board of Education to disseminate the contents of the syllabus amongst the pupils of the schools.—Mr. H. LEWIS (Parliamentary Secretary to the Board of Education) replied: I do not accept the description of the document and its purposes implied by the last part of the question.

Sanitary Condition of Rye.

Mr. GRUNDY asked the Minister of Health whether he had received any complaints from the town of Rye regarding the housing conditions in that district and the general insanitary condition of the town; whether his attention had been drawn to the last record of the local medical officer of health; whether a scheme for building 90 houses was adopted but had not been proceeded with; and whether, in view of the insanitary condition of a large number of houses in the district and the failure of the Rye town council to proceed with the erection of houses on the Cadborough site, he would have further inquiries made into the whole matter.—Dr. ADDISON replied: I have not received any such complaint from the town of Rye, but I have seen the report of the medical officer of health for the year 1919, and I find that a number of houses were found on inspection to be unfit, and that the medical officer of health considers that additional houses will be necessary to replace some of them. Plans for 90 houses at Rye have been approved, and a contract for an instalment of 20 houses was signed on Sept. 20th. I am having inquiries made into the progress of the scheme.

FRIDAY, NOV. 26TH.

Employment of Women and Young Persons.

The Women, Young Persons, and Children (Employment) Bill was considered on Report, when Captain BOWYER moved the following new clause:—

"Notwithstanding anything contained in the Factory and Workshop Act, 1901, it shall, subject to any conditions prescribed by the Secretary of State, be lawful at any time between 6 in the morning and 10 in the evening, on any week day other than Saturday, to employ women and young persons in shifts averaging for each shift not more than eight hours per day."

He said this clause embodied a recommendation of the Select Committee on the subject, who had heard evidence including that of representatives of certain workers' organisations whose members were unanimous. He claimed report of that committee was unanimous. He claimed that it would lead to a reduction of hours for the workers, to increased output, to increased efficiency, and to a decrease of unemployment. He would let those advantages go by the board, however, if he thought that the system would militate against the health or the comfort of the workers, but he believed neither would be imperilled.—Mr. SEDMON said there was any belief in the equality of sex, surely they ought to give women opportunities of earning their daily bread while taking care that the conditions of work would not jeopardise their health or that of the young persons employed.—Mr. J. BELL opposed the clause. For women to have to begin work at 6 o'clock, which would mean leaving home at 5 without breakfast and having to work three or four hours before they got a meal, could not be good for them or for the children they might bear.—Major GRAY also opposed the clause. If the industry of the nation could not be made to prosper without exploiting boys and girls of 16 we had, indeed, entered on the down-grade in this country.—Captain ELLIOT, as one who was anxious for shorter hours of employment, thought that if they negated the proposal to have two shifts they wiped out altogether the chance of getting a really short working day. He was not pressing this point as representing any organisation or as a reactionary step to pass more women and young children into the industrial mill, because it was his object, as it was of everyone engaged in medicine,

to extract them as far as possible from the meshes of that damnable net. But he could not see that the rejection of the proposal would help the ideals honourable Members have set before them.—Mr. SUGDEN said employers in the textile industries meant to fight this clause. This peculiar method of labour called the two-shift system would be against the physique and the health of the employees and of the children that were to come.—Mr. INSKIP, a member of the Departmental Committee on the subject, said that medical men after medical man with the ample experience gained during the war, quite impartial people, had declared that no harm would result. No case had been made out on medical grounds against the two-shift system.—Mr. SHORTT (Home Secretary) said a great deal of the debate had been wide of the mark. There was no proposal for new or permanent legislation, but the proposal was that certain provisions that were adopted during the war should be continued for a limited period in order that they might be thoroughly investigated, and that the permanent provision eventually decided upon should be based on the best and widest experience. It had not been found that it had any evil effects either upon the health or the homewelfare of those concerned. The debate was adjourned.

National Health Insurance.

Mr. T. DAVIES asked the Minister of Health whether a person insured under the National Insurance Act on going into a workhouse became chargeable to the common fund of the union, while the latter got no part of the sick benefit due to the member; and if that were so, could it be altered.—Dr. ADDISON replied: The answer to the first part of the question is in the affirmative. Under Section 12 of the National Insurance Act, 1911, as amended by subsequent Acts, no part of any benefit due in respect of the period of an insured person's residence in a Poor-law institution is payable to the guardians, and it is also provided if, or charge on, the Act that there can be no assignment of, or charge on, any of the benefits which it will be remembered are provided out of contributions compulsorily paid by insured persons and their employers. The guardians have, however, their ordinary powers of recovery of the whole or part of the cost of maintenance where the circumstances appear to them to justify such a course.

Obituary.

SYLVESTER DAVID WILLARD, M.R.C.S., L.R.C.P.

WE regret to announce the death, on Nov. 28th, of Sylvester David Willard in his fifty-sixth year from broncho-pneumonia of some ten days' duration. His father, a practitioner in Albany, New York, died early, and Willard was brought up by his mother, whose striking personality he shared, and with whom he lived until her death a year ago at the age of 86. Willard was educated at St. Bartholomew's Hospital, and after taking the Conjoint qualification of the London Colleges, worked for a year at the Presbyterian Hospital, New York. He then held further resident appointments in London, and settled in practice in the West End, becoming connected with the Equitable Assurance Company of the United States, and subsequently its chief medical examiner, and medical officer to the U.S.A. Consulate-General. He remained an American citizen, and had the best characteristics of his nationality. Dr. R. H. King, a close friend for 37 years, writes: "He was a man of distinct personality and wide sympathies, so that he had a varied acquaintance in all parts of the world. His numerous friends and patients knew that he was interested in their individuality, and always eager to help in difficulties—medical or otherwise. It was his combination of the man of the world and the careful, painstaking physician that ensured the confidence of his patients."

PRESENTATION TO A MEDICAL MAN.—Mr. H. Barnes, O.B.E., LL.D. McGill, M.D. Edin., J.P., who has been elected President of the Cumberland Infirmary, with which institution he has been connected for the past 47 years, was on Nov. 25th presented by the honorary medical staff with a handsome silver inkstand as a mark of their esteem and regard. Dr. Barnes was appointed physician to the Cumberland Infirmary in 1873 and has devoted his life to the improvement of the institution, a wing of which bears his name.

Deputy Commissioner of Medical Services.

Lieutenant-Commander HILTON YOUNG asked the Minister of Pensions whether he would consider the desirability of abolishing the office of Deputy Commissioner of Medical Services, and, in the interests both of economy and efficient administration, delegating the work now done by this department to the local committees as before October 1919.

Major TRYON replied: The Deputy Commissioner of Medical Services is responsible both for the machinery of medical boarding and the examination of pensioners, as well as for the supervision of their medical treatment. My right honourable friend is satisfied that this post serves the interests both of economy and of efficient administration, and he is unable, therefore, to entertain my honourable and gallant friend's suggestion.

Departmental Committee on Pensions Administration.

Mr. O'BRYEN-GORE asked the Minister of Pensions if he had appointed or would appoint anyone on the Departmental Committee on Pensions Administration familiar with Poor-law administration in order that the problem of applications by ex-Service men for poor relief might be examined in its relation to the present pensions system.—Major TRYON replied: The inquiry is concerned solely with the administrative machinery of the Ministry, and the difficulty referred to would, therefore, be outside the scope of the Committee's investigation.

Grants for Medical Education.

Mr. GILBERT asked the President of the Board of Education if he would state which of the London hospital medical colleges received grants in aid of medical education during the years 1918 and 1919 respectively; how much was granted to each school; whether any of the medical schools had adopted the clinical unit system advocated by the Advisory Committee on University Grants; if so, what amounts had been or would be so allocated; and what was the scale of salaries of the director, assistants, and staff of each such clinical unit.—Mr. CHAMBERLAIN (Chancellor of the Exchequer) replied and gave tabular statements showing (1) the grants to London hospital medical schools, and (2) the staffs of clinical units.

TABLE I.—Grants to London Hospital Medical Schools.

Medical School.	Academic year, 1918-19.	Academic year, 1919-20.	
		Block grant.	Clinical unit grant (if any).
	£ s.	£	£
Charing Cross Hospital ...	750 0	1,000	—
King's College Hospital ...	633 10	700	—
London Hospital ...	5,200 0	6,000	—
Royal Free Hospital ...	3,576 0	4,000	—
St. George's Hospital ...	650 0	700	—
St. Bartholomew's Hospital ...	4,260 10	5,000	5,750
St. Mary's Hospital ...	1,700 0	1,900	—
St. Thomas's Hospital ...	3,820 0	4,500	2,350
University College Hospital ...	3,375 0	4,000	5,570
Westminster Hospital ...	290 10	300	—
London School of Tropical Medicine ...	985 0	1,100	—
Middlesex Hospital ...	—	2,000	—
Royal Dental Hospital ...	—	1,000	—
Total ...	25,220 10	32,200	13,650

Clinical units were established for the academic year 1919-20 at the Medical Schools of St. Bartholomew's (medical and surgical), St. Thomas's (surgical), and University College Hospital (medical and surgical), and special additional grants were paid to these schools as shown above.

TABLE II.—Staffs of Clinical Units.

St. Bartholomew's.			
Medical Unit.		Surgical Unit.	
Director ...	£200	Director ...	£200
Assistant Director ...	750	Assistant Director ...	750
First Assistant ...	400	First Assistant ...	400
Second Assistant ...	350	Second Assistant ...	350
St. Thomas's.			
Surgical Unit.		Medical Unit.	
Director ...	£150	Second Assistant ...	£400
First Assistant ...	500	Pathological Assistant ...	500
University College.			
Surgical Unit.		Medical Unit.	
Director ...	£200	Director ...	£150
Two Assistants at 1300 ...	1300	First Assistant ...	700
£500 each ...	—	Second Assistant ...	600

Upkeep and Repair of Artificial Limbs.

Major GLYN asked the Minister of Pensions whether serving officers who wore artificial limbs had to bear the cost of their upkeep and repair, and whether this difference of treatment between officers and men suffering the same disability had been made for any reason.—Major TRYON replied: The answer to the first part of the question is in

the affirmative. I am informed that non-commissioned officers and men are discharged from the Service when they have been fitted with an artificial limb. The second part of the question does not therefore arise. I may add that there is no difference of treatment between officers and men when both have left the Service.

THURSDAY, NOV. 25TH.

Concurrent Treatment and Training.

LORD HENRY CAVENTISH-BENTINCK asked the Minister of Pensions if he could state how many men in receipt of high disability pensions were still in need of further treatment and training; how many were now undergoing treatment and training in Government institutions; and whether it was proposed to add to the accommodation at present available.—Mr. MACPHERSON replied: Some 2000 men have been recommended by medical referees for admission to convalescent centres for concurrent treatment and training. I regret that it is not possible, without considerable inquiry, to state how many of these men are in receipt of high disability pensions, but I am informed that a majority of the men found suitable for concurrent treatment and training do not belong to the category suggested. Arrangements are in progress for providing substantial additions to the existing accommodation, and a first instalment of 300 places will be available early next month.

Treatment Allowances.

Mr. CARRIS asked the Minister of Pensions if he would allow treatment allowances to men for one week or more after their treatment ceased in order that they might be held until they found employment.—Mr. MACPHERSON replied: I fear that the concession proposed would be contrary to the terms of the Royal Warrant under which these allowances are paid, since they are paid during the period of treatment only. Moreover, the object sought to be gained by my honourable friend's proposal would not be within the scope of my department, but within that of the Ministry of Labour.

International Congress against Alcoholism.

Lieutenant-Colonel ALLEN asked the Prime Minister whether Sir Auckland Geddes acted on the instructions of His Majesty's Government in attending the Fifteenth International Congress against Alcoholism recently held at Washington; if so, whether he was instructed to make reports thereon and send them to the Home Office, Board of Trade, and Ministry of Health; and, if so, would he have these reports printed and circulated.—Mr. HADSDORTH (Under Secretary for Foreign Affairs) replied: Sir Auckland Geddes attended the first meeting of the Congress, and H.M. Government was represented at the remaining meetings by a member of the staff of the British Embassy at Washington. I expect to receive shortly a report of the proceedings of the Congress, and will then consider whether it could usefully be printed and circulated.

Maternity Proposals of the Washington Conference.

Mr. ADAMSON asked the Prime Minister whether he was aware that the decisions of the Washington Conference had to be submitted to Parliament for legislative enactment within 12 months of the date of the closure of the Conference, and that this period expired on Jan. 27th next; and whether he was now in a position to state the Government policy on the maternity proposals of the Conference.—Mr. LLOYD GEORGE replied: The Government are aware of their responsibilities under Article 405 of the Treaty of Versailles, and are devising machinery in accordance with the law and practice of the constitution for giving effect thereto. I would, however, point out to my right honourable friend that in exceptional circumstances a period of 18 months is allowed for taking the action prescribed under Article 405, although I hope that there will be no occasion for the Government to avail themselves of this extended period.

Regulations under the Dangerous Drugs Act.

Mr. GILBERT asked the Secretary for the Home Department whether all the regulations under the Dangerous Drugs Act have been issued and are now in operation.—Mr. SHOOTT replied: Regulations under Sections 3 and 7 of the Act are in preparation, and will, it is hoped, shortly be issued.

Export of Opium, Morphia, and Cocaine.

Mr. GILBERT asked the President of the Board of Trade if he would state what was the form of certificate now required to be signed on behalf of foreign Governments without which opium, morphia, and cocaine and their preparations could not be exported from the country.—Sir PHILIP LLOYD-GEORGE (Parliamentary Secretary to the Board of Trade) replied: Exports of opium, morphia, and cocaine and their preparations to United States of America, France, Canada, and Japan are only licensed on production of a certificate signed on behalf of the Government concerned that the consignment is required exclusively for legitimate scientific or medical purposes and will not be

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UNIVERSITY OF BIRMINGHAM.—The University is making an appeal for a sum of £500,000. Money is needed, after paying off a capital debt of £130,000, for increased remuneration to the teaching staff and for extension. As in similar institutions, the cost of administration and maintenance has more than doubled. The present stipends of the professors and their assistants are quite inadequate and not commensurate with the services they render to the community. Students' fees have been raised by 25 per cent., but these do not meet a quarter of the expenses. Most of the science departments are now housed at the Edgbaston buildings, and it is desired to remove the biological departments from the old Mason College buildings in Edmund-street. This will leave these buildings for the Faculties of Arts and Medicine. Much more space is needed for the medical studies, and new chairs in anatomy and biochemistry, and whole-time professorships in medicine, surgery, and gynecology are desired. More room is also needed for research. Nearly half the sum required has already been promised, but a large part is earmarked for special purposes and is not available for the University as a whole.

MANCHESTER.—At a meeting of the Manchester Town Hall on Nov. 29th, 1906, the Manchester Committee of Approved Societies for the purpose of forming a Manchester and District Sanitary Authority was approved. The committee consists of the following members:—

A NURSING SCHEME FOR MANCHESTER.—At a meeting held in the Manchester Town Hall on Nov. 29th, attended by about 150 representatives of Approved Societies, a great nursing scheme was initiated and approved. In March last a resolution was passed in favour of the extension of the nursing institution in Manchester, "with a view to supplying nurses for the Public Health Office and from the any calls from the Insurance Committee and from the Approved Societies for the nursing of insured persons and that grants be made to maintain the additional staff necessary for these purposes." The extension would entitle a doctor attending an insured person to call for a fully qualified nurse to look after the case. The extended organisation has now been made, the Manchester Insurance Committee having approved a donation of £1000 and the Public Health Committee a grant of £500, and the scheme was presented for the approval of the societies' members. As it is designed for the benefit of the societies, their and as the Nursing Association's income must be largely augmented by contributions from the societies, a local approval was required. The scheme involves a big contribution of 3d. per insured person, which would bring in about £3000. This amount would enable the staff of nurses to be adequately increased and properly paid. The draft scheme was passed unanimously, and it was decided that the representatives should recommend to their societies the payment of 3d. per insured person to the association.

PAYMENT BY PATIENTS AT THE EAST SUSSEX HOSPITAL.—The governors of the East Sussex Hospital at Hastings, being opposed to any system of nationalisation of hospitals, have decided, at any rate for one year, with the object of being able to compare the financial situation at the end of that time with the present annual deficit of £2000. The governors met on Nov. 22nd, and by a unanimous vote passed resolutions that each in-patient be asked to contribute a minimum sum of one guinea per week, when able, towards the cost of his or her maintenance; that an almoner and collector be appointed at a salary of not more than 20-mile per annum; and that in-patients residing outside the hospital radius of the hospital be not admitted unless the cost of their maintenance per week be made towards the cost of the hospital £1 11s. 6d. per week be made towards the cost of the hospital. It was stated during the discussion that this hospital was of a patient's upkeep and the minimum sum of £1 1s. weekly £4 weekly, and that the minimum sum of £1 1s. weekly would really only go towards defraying the cost of board and lodging. For some years in a quiet way efforts have been made to induce voluntary payments from patients to help meet the increased prices. These efforts have been very successful, inasmuch as while only £23 came in this way in 1916 the total for this year has been over £500. The governors are of the opinion that the patients will willingly respond to the new idea still further, and that the voluntary system can thus be preserved.

DEVON AND EXETER MEDICO-CHIRURGICAL SOCIETY.
A meeting of this society was held on Nov. 9th, Mr. B. Dyball, the President, being in the chair. The President read a paper on Some Cases of Uro-genital Surgery. He stated that the cases had all been under his care during the past two to three years, and that many were of more than average interest. They could be grouped as follows: (1) Renal calculi, 7 cases; (2) ureteric calculus, 2 cases; (3) tuberculous of kidney, 2 cases; (4) new growth of kidney, 2 cases; (5) hydronephrosis, 1 case; (6) new growth of caliculi, 2 cases; (7) foreign body in bladder, one case. Radiographs of the caliculi in situ were passed round the meeting accompanied by the specimens which had been removed at the operation and slides of the neoplasms. In

THE SERVICES.

some instances the radiographs had been taken after a barium meal and showed a condition of enteroptosis in association with the discussion Mr. A. I. Candler congratulated the course of the kidney, where a portion of the ureter was removed and continuity re-established by anastomosis. Mr. Candler also compared the movable kidney of enteroptosis with that which moved up and down independently of the viscera, and considered the former to be more likely to be associated with formation of calculi. From his experience, when serving in the East, oxalates occurring in concentrated urine could of themselves cause severe symptoms. Mr. R. A. Worthington agreed that malignant disease of the bladder was incurable, in that the disease gave no permanent benefit, but growth was slow. He considered that true recurrence of stone was rare, and that in many so-called recurrences the nucleus of the stone was probably present at the time of operation. Mr. P. H. Stirk mentioned the case of a middle-aged man who had repeated recurrences of calculus after what at the time appeared to be a free projecting lithotomy operations. On subsequent exploration of the bladder an encysted stone was found with each occasion by the lithotrite. Dr. J. Raglan Thomas quoted his personal experience with regard to the value of diet and hydrotherapy as a means of preventing a recurrence of the bladder which had done well under open-air treatment. Mr. C. E. Bell related a case of foreign bodies in the bladder due to the passage of iodoform bougies, and after some weeks' treatment with the bougies pain became so severe that it was decided to explore the bladder through the dilated urethra. Solid masses of iodoform were found and removed—not without difficulty. Dr. R. V. Solly alluded to the symptom followed micturition. The President, in his reply, discussed the possibility of malignant disease of the bladder being grafted upon an innocent tumour, which would account for the apparent extensive duration of the affection.

The Services.

THE PAY OF ARMY NURSES.
Regular Army Nursing
over the new

THE PAY OF ARMY NURSES.

MEMBERS of the Regular Army Nursing Service are undoubtedly feeling aggrieved over the new scale of pay and pensions. At a time when the purchasing value of the pound is officially admitted to be something like 8s., the pay of staff nurses in the Queen Alexandra's Imperial Military Nursing Service has been fixed at £50 per annum, rising in two years to £55, and the pay of sisters at £75, rising in two years to £85. But if the remuneration of a staff nurse should be to be kept even at its former value (£40), her salary should have become £100 instead of £60, and that of the sister £125 rather than £75. We have to remember that it is a matter of two ranks mainly that the Service is made up. It is a small body, 300 all told, and the chances of promotion are small. The maximum length of service is 25 years, so that on the present scale, £55 is the utmost height to which the majority of these women can aspire. The pensions of the sisters and staff nurses are reckoned on a basis of £3 for each year, so that we arrive easily at a maximum of £75 after 25 years. The new scale is felt to involve not only present hardship but future efficiency, for unless the best type of nurse enters the ranks now a service of first-rate reputation will degenerate into something incapable of competing with superior attractions elsewhere.

ARMY MEDICAL CORPS.

Colonels: G. B. T. Church

ROYAL ARMY MEDICAL CORPS.
Lieutenant-Colonels: G. I. [unclear] [unclear].

ROYAL ARMY MEDICAL CORPS.

Major, to be acting Lieutenant-Colonel: G. B. T. Churchill
and W. P. C. Lunn
Capt. W. L. A. Harrison resigns his commission.
C. A. Davies, late Major, gains the acting rank of Major.
Capt. A. Shepherd relinquishes the acting rank of Major.
Late temporary Captains to be temporary Captains: S. H. Scott,
F. L. Power, H. H. Perry, and R. A. Shekleton.
H. C. Perkins to be temporary Lieutenant.
Officers relinquishing their commissions: Temp. Major D. M.
Hargreaves retains the rank of Major, Temp. Capt. R. B. Wallcut,
C. Y. Ford, and acting Major A. E. Atkinson (granted the rank of
Major).
The undermentioned Temporary Captains relinquish their com-
missions.—Temp. Capt. (retaining the rank of Captain) S. F. Davis,
A. S. Allan, H. W. Fox, R. B. F. McKail, J. L. Davies, G. D.
MacIntosh, and A. A. Skells.
Temp. Hon. Capt. J. H. Taylor retains the honorary rank of
Captain.

Medical News.

UNIVERSITY OF OXFORD.—The following have been appointed Examiners for medical degrees in 1921 and 1922: In Organic Chemistry, F. D. Chittaway, M.A.; in Human Anatomy, F. G. Parsons, F.R.C.S.; in Human Physiology, J. G. Priestley, D.M.; in Materia Medica and Pharmacology, W. E. Dixon, M.A. Camb.; in Pathology, G. Dreyer, M.A.; in Forensic Medicine and Public Health, B. H. Spilsbury, B.M., M.A.; in Medicine, E. F. Buzzard, D.M.; in Surgery, J. Howell Evans, D.M., M.Ch.; in Obstetrics, A. Donald, D.M. Edin.

The Minister of Health has appointed Dr. C. E. S. Flemming, of Bradford-on-Avon, and Dr. E. H. Houghton, of Mansfield, to be members of the Consultative Council on Medical and Allied Services, in succession to Dr. A. Fulton and Dr. A. Linnell, who resigned from the Council on taking up appointments under the Ministry.

ROYAL SURGICAL AID SOCIETY.—The annual meeting of this society will be held at the Mansion House, London, on Tuesday, Dec. 7th, at 4 p.m., the Lord Mayor presiding.

Lieutenant-Colonel C. I. Ellis, G.M.G., R.A.M.C. (T.), has been appointed a Knight of Grace of the Order of the Hospital of St. John of Jerusalem in England.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—The date for the reopening of the school is Jan. 3rd, and not Jan. 23rd, as stated in our advertisement pages last week.

MEDICAL SOCIETY OF LONDON.—A meeting will be held at 11, Chandos-street, Cavendish-square, London, W., on Dec. 6th, at 8.30 p.m., when a discussion on the Surgical Treatment of Malignant Disease of the Colon will be introduced by Sir Berkeley Mommhau, followed by Sir W. Arbuthnot Lane, Mr. Garnett Wright, Mr. J. P. Lockhart-Mummery, Mr. B. G. Grey Turner, and Mr. H. W. Carson.

The Kent Branch of the B.M.A. will be addressed by Lord Dawson of Penn on the section of the Report of the Consultative Council dealing with Primary Centres, with special reference to the application of the principle to existing hospitals, clinics, and medical institutions. Every member of the profession in the area around Dartford is cordially invited and strongly urged to attend at 3 p.m. on Thursday, Dec. 9th, at the Board Room, 37, West Hill, Dartford.

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.—The fund inaugurated in October last for increasing the clinical facilities for the medical education of women at the Royal Free Hospital is growing steadily, and now amounts to over £27,000. The donations include £1000 from Sir Dornbaji Tata, of Bombay. Twenty-three beds for patients who can afford to pay for their maintenance whilst sick will be opened at the Royal Free Hospital about the end of January; the demand for these beds grows daily. The provision and maintenance of the free or partially free beds for those persons who at present cannot pay the cost price of their maintenance is giving cause for much anxiety. Contributions to the appeal fund and to the general expenses of the hospital should be sent to Sir Francis Layland-Barnes, Bart., M.P., Appeal Fund Committee Room, Royal Free Hospital, Gray's Inn-road, London, W.C.1.

NATIONAL HEALTH AND STATE SERVICE.—Lord Dawson of Penn, speaking at the Manchester Town Hall recently on the organisation of the medical services, suggested that discussion between doctors and non-medical members of the community would be helpful, and that there must be a steady extension of the organised provision of fabric and equipment. Nothing should be done to make the family doctor an official and the patient, not a friend, but a cipher. The first to suffer from such a State service would be the workman and his family. The present state of finance was the governing factor in the situation. A closer and better organised association between the medical officers of health and the other doctors of a district would be immensely to the advantage of the community, and he suggested the formation in every district of an advisory committee to the health administration. Hospitals that had teaching schools should be put into a separate schedule, and receive financial assistance from the national exchequer. The Manchester Royal Infirmary was a national institution which should be a joint responsibility of the nation and the city of Manchester. Necessary State aid could be given, Lord Dawson concluded, without sacrificing the present management of the voluntary hospitals.

EPSOMIAN CLUB.—The annual dinner of this club will be held at the Trocadero Restaurant, Piccadilly Circus, London, on Thursday, Dec. 9th, at 7 p.m., under the chairmanship of Dr. H. A. Kidd. The annual meeting of the club will precede the dinner at 6.30 p.m. Communications to Mr. Edred M. Corner, 37, Harley-street, Cavendish-square, London, W.1.

SIR PATRICK DUN'S HOSPITAL, DUBLIN.—The memorial to past students of this hospital who fell in the war will be unveiled on Wednesday, Dec. 8th, at 5 p.m. The memorial consists of a large brass tablet bearing the names of 30 men who were killed or died on service prior to the date of Armistice and who were past students of the hospital. A bed in the hospital is also being endowed in their memory. The memorial has been subscribed for entirely by 417 past or present students of the hospital who also served. All old Dun's men and their friends are cordially invited.

WEST OF ENGLAND EYE INFIRMARY, EXETER.—The annual meeting of subscribers to this infirmary was recently held under the presidency of the Earl of Portsmouth. The medical report stated that 3028 patients had been treated during the past year. The financial statement showed that the expenditure of the institution had increased from £1500 to £2449 per annum. It was stated that charges to patients might have to be increased in the near future.

ORTHOPEDIC SURGERY IN BRISTOL.—In an address to the Bristol Botany Club Mr. E. W. Hey Groves gave an account of the need for coordinated treatment of the cripples of the city. He said there were about 300 crippled children needing treatment, of whom 60 or 80 were suffering from surgical tuberculosis. He called for closer co-operation between the various agencies concerned—the city council and its health committee, the voluntary hospitals, the Bristol guardians, the educational authorities, the Surgical Aid Society, and so on—and appealed in particular for the provision of hospital beds for chronic cases, within reach of the children's homes, where education and treatment could be carried on side by side for indefinite periods. He criticised the plans which had been proposed by which Bristol should provide 60 beds at Alton, as this would meet only a part of the difficulty, while it would separate children from their parents for long periods. This complaint is very similar to that which is being raised on behalf of the ex-Service men of Bristol, who have to go to Bath for in-patient orthopedic treatment, and have thus to undergo separation from home. The Bath Pensions Hospital is, however, a temporary one only. Moreover, its site is wanted for the rebuilding of the Bath Royal United Hospital. It will therefore be necessary before long to provide for in-patient treatment of the orthopedic cases among the ex-Service men of Bristol. Mr. Hey Groves is in charge of the orthopedic work at Bath, and it is probable that he will succeed in uniting this with work on behalf of the cripples in a comprehensive and efficient scheme of orthopedic treatment in Bristol.

BIRMINGHAM HOSPITAL SATURDAY FUND.—The collection this year reached £60,000, and £30,000 have just been distributed among the various medical charities of the city. The grants to the hospitals have increased from £10,000 in 1915 to £30,000 this year. It is hoped that in a short time the total collection may reach £100,000. In recent correspondence in the lay press on hospital matters there has been some strong criticism of the Hospital Saturday Fund. It is pointed out that, whilst the Fund was founded for the support of the hospital, the recent policy has been to establish large convalescent homes at the seaside and in the country for the benefit of the subscribers to the Fund. The expense of the upkeep of these homes has been such that less than a half of the total annual collections have been given to the hospitals. The General Hospital has had to sell £85,000 of its investments at a loss of 42 per cent. of their total value to meet a bank loan. In order to increase its income the board of management proposed a maintenance charge of 1 guinea per week per patient. This did not meet with the approval of certain working-class supporters, who proposed as an alternative a General Hospital League which would make collections among factory workers and others. This league in turn has been strongly opposed by the Hospital Saturday Fund and also by the Hospital Council, which is a body consisting of representatives of all the hospitals. The chairman and secretary of the Hospital Council are also chairman and secretary of the Hospital Saturday Fund. The Hospital Council now proposes to establish a Hospital League, which will make systematic collections from shopkeepers, offices, and other groups not reached by the Saturday Fund. Hitherto the Hospital Council has been an inert body, but it should play an important part in bringing closer co-operation between the various medical charities.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

FOURCARE, S. F., M.B., B.S. Lond., has been appointed Anaesthetist to the Hospital for Consumption and Diseases of the Chest, Brompton.

PHRESTLEY, J. G., M.B., B.Ch. Oxt., Lecturer in Biochemistry at the University of Oxford.

RICHARDS, H. A., M.R.C.S., L.R.C.P. Lond., Assistant Anaesthetist at the West London Hospital, Hammersmith.

King's College Hospital:—The following have been appointed Clinical Assistants: MOORE, H. A., M.D. Lond. (Medical); GILBERT, A. S., F.R.C.S. Edin. (Surgical); BROWN, W., M.D. Oxon. (Neurological); PEARSON, W. J., M.D. Oxon. (Children's); THOMSON, M. S., M.B., B.Ch. (Dermatological); WATKINSON, T. A., M.D., HICKLEY, A. M., M.R.C.S., L.R.C.P. Lond., GINSON, J. McCox, M.B., B.S. Irel., BRENNAN, H. W., M.B. Cantab. (Ophthalmic); ANDERSON, C. E., M.R.C.S., L.R.C.P. Lond. (Aural); McLEATH, C. H., M.D. Glasg. (Throat); COLLINS, H. W., M.R.C.S. (Radiological); MOORE, G. M.B., B.Ch. Cantab. (Throat and Nose); SWEENEY, D., M.D. Aberd. (Ophthalmic); HAGGINS, T. T., L.R.C.S. Eng. (Orthopaedic); WATKIN, C. P. G., M.R.C.S., L.R.C.P. Lond., Surgical Tutor and Sainsbrooke Registrar; McALISTER, A. C., Obstetric Tutor and Sainsbrooke Registrar.

Queen Charlotte's Lying-in-Hospital: SOPHIANPOULOS, G. J., M.R.C.S., L.R.C.P. Senior Resident Medical Officer; SAVAGE, J. J., M.B. Oxt., M.R.C.S., L.R.C.P. Lond., Assistant Resident Medical Officer.

University of Cambridge: APPLETON, A. B., M.R.C.S., L.R.C.P. Lond., Senior Demonstrator in Anatomy; HOPKINSON, A., M.B., B.Ch. Cantab., and REED, D. G., Junior Demonstrators in Anatomy.

Certifying Surgeon under the Factory and Workshop Acts: MURRAY, R. A., M.D. Edin. (Stockport).

Vacancies.

For further information refer to the advertisement columns.

Abergavenny, Monmouthshire Asylum.—Jun. Asst. M.O. £400.

Bath, Royal United Hospital.—H.S.

Bedford County Hospital.—H.S. and Asst. H.S. £180 and £150.

Bethlem.—Res. H.P. £25 per quarter.

Birmingham and Midland Ear and Throat Hospital.—H.S. £400.

Bradford City.—Asst. Bact. £600.

Bristol General Hospital.—Hon. S. Also Hon. Asst. S.

Burnley County Borough.—Asst. M.O.H. £500.

Cambridge, Addenbrooke's Hospital.—H.S. and H.P. £130.

Cape Town University.—Chair of Bio-Chemistry. £300.

Children's Infirmary, Cleveland-street, W.—Jun. Asst. M.O. £478.

Colonial Service.—M.O.'s for West African Medical Staff, Government Service in Malaya, East African Protectorates, West Indies (including British Guiana), Fiji, and the Western Pacific, &c.

Croydon General Hospital.—Vacancy on Hon. Med. Staff.

Cumbrian County Council.—Asst. County M.O. £500.

Exeter, Royal Devon and Exeter Hospital.—Sen. H.S. £250.

Gateshead County Borough Mental Hospital, Stannington, Northumberland.—Asst. M.O. £350.

Gloucestershire Royal Infirmary and Eye Institution.—Asst. H.S. £150.

Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—H.P., H.S., Cas. M.O., and Cas. S.O. £150.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Asst. P. Also Asst. in Dept. of Path. £250.

Hull and Goole Port Sanitary Authority.—Asst. M.O.H. £750.

Hull Royal Infirmary.—Asst. H.S. £150.

Inverness, Northern Infirmary.—H.S. £150.

Leicestershire and Rutland Mental Hospital, Narborough, near Leicester.—Temp. M.O. 7 gns. per week.

Leham Sanatorium.—Med. Supl. £650.

London County Mental Hospital Service.—Sixth and Seventh Asst. M.O.'s. £500.

London Temperance Hospital, Hampstead-road, N.W.—H.P. £120.

Ma.tra. and Southern Mahratta Railway Company, Limited.—District M.O. Rs. 750 per annum.

Manchester, Ancoats Hospital, Mill-street.—H.S. £150.

Manchester, Barnes Convalescent Hospital, Chaddock.—Res. M.O. £300.

Manchester Royal Infirmary.—M.O. for Massage and Electrical Dept. £150. Also Accident-room H.S. £200. Also H.S. £50 for first six months, £100 second.

Ministry of Pensions, Epileptic Colony, Maghull, near Liverpool.—Jun. M.O. £100.

Newark Hospital and Dispensary.—Res. H.S. £200.

Newcastle-upon-Tyne Hospital for Sick Children.—Jun. Res. M.O. £200.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Anasth.

Nottingham Children's Hospital.—Female Res. H.S. £200.

Nottingham City Asylum.—Second Asst. M.O. £400.

Plymouth Borough.—Asst. M.O.H. £500.

Prescot Union, Whiston, Prescot.—Non-Res. Asst. M.O. £150.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Pathologist and Registrar. £200.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Hon. Radiologist. £100.

Queen Mary's Hospital for the East End, Stratford, E.—Hon. Ophthalm.

Royal Free Hospital, Gray's Inn-road, W.C.—Three Chief Assts. 50 guineas. Also Surg. Regls. £250.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Cas. O. £100.

Ryde, Royal Isle of Wight County Hospital.—Res. H.S. £250.

St. Bartholomew's Hospital.—Asst. P.

St. Mark's Hospital for Cancer, Fistula, and Other Diseases of the Rectum, City-road, E.C.—H.S. £250.

Sheffield, Jessop Hospital for Women.—Sen. Res. O. £250. Jun. H.S. £100.

South Shields, Ingham Infirmary and South Shields and Westoe Dispensary.—Sen. and Jun. H.S. £225 and £175.

Springfield Mental Hospital, Wandsworth Common, S.W.—Asst. M.O. £625.

Stockport Infirmary.—Jun. Res. M.O. £220.

Stroud General Hospital.—H.S. £200.

Sunderland, Royal Infirmary (Children's Hospital).—Female Jun. Res. M.O. £150.

Taunton and Somerset Hospital.—Res. Asst. H.S.

University College Hospital Medical School.—Part-time Demonstrator of Public Health, Bacteriology. £50.

Wadley, near Sheffield, West Riding County Asylum.—Third Asst. M.O. £300.

West London Hospital, Hammersmith-road, W.—H.P. £50.

West Norfolk and King's Lynn Hospital.—Res. M.O. £150.

Wigan Education Committee.—Asst. Sch. M.O. £500.

Worcestershire County Council.—Asst. County M.O. £500.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Keith and at Festinog.

Births, Marriages, and Deaths.

BIRTHS.

FRANCIS-WILLIAMS.—On Nov. 19th, at Graig House, Dawlads, the wife of Cecil Francis-Williams, M.R.C.S., L.R.C.P. Lond., of a daughter.

NEWTON.—On Nov. 19th, at Craigmore, Pitlochry, N.B., the wife of Charles H. Newton, M.B., Ch.B. Edin., of a daughter.

PACLI.—On Nov. 24th, at 12, Upper Northgate-street, Chester, to the wife of Arthur Blackwell Paul, M.B. Cantab.—a daughter.

ROSE.—On Nov. 24th, at a nursing home, Cambridge, the wife of F. G. Rose, M.R.C.S., L.R.C.P. Lond., of a daughter.

SYKES.—On Nov. 2nd, at Ashurst, Formby, Lancs., the wife of A. Barry Sykes, M.R.C.S., L.R.C.P. Lond., of a son.

MARRIAGES.

COOK-SMITH.—On Nov. 4th, at St. George's Church, Bloomsbury, Stanley Cook, M.D.S., to Annie, eldest daughter of Mr. and Mrs. W. J. Breach Smith, of Tolemore, Penzance.

COOPER-DOWNING.—On the 21st Nov. 1920, at West End Wesleyan Church, Morecambe, Lancs., Mervyn Clement Cooper, M.C., M.R.C.S., L.R.C.P., only son of the late Frederick Clement Cooper and Mrs. E. L. Hawkes Pott, of Shanghai, China, to Alice May, eldest daughter of Mr. and Mrs. Downham, of Morecambe.

LEWIS-TALBOT.—On Nov. 25th, at St. Mary's Church, Reigate, John Biddulph Stuart Lewis, younger son of Mr. Arthur Lewis, of Felbridge, Norwich, to Dorothy Hannah, youngest daughter of Mr. and Mrs. R. J. Talbot, of Reigate, Surrey.

DEATHS.

HARRIS.—Worshipful John Harris, M.B.E. (Military), L.R.C.P., M.R.C.S., of 2, Comeragh-road, W. Kensington, eldest son of late Lieutenant-Colonel W. P. Harris, I.M.S., M.D., on Nov. 25th, of heart failure.

KERR PRINGLE.—On Nov. 25th, after a few days' illness, Millie, wife of G. L. Kerr Pringle, M.D., of Harrogate.

PRENTICE.—On Nov. 20th, at Castle-street, Canterbury, Zachariah Prentice, M.R.C.S., aged 60 years.

PRICHARD.—On Nov. 21st, at his residence, Tan Llan, Rhyl, Richard Morison Prichard, M.D., J.P., aged 63 years.

N.B.—A fee of 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINGEY, AND COX, London. Collected Papers on the Psychology of Phantasy. By Dr. C. E. LONG. Pp. xii + 216. 10s. 6d.

BAILE, J. SOSS, AND DANIELSON, London. Handbook for Tuberculosis Workers. By Noel Bardwell, M.D. Pp. 65. 1s. 6d.

Text-book of Trauma-Bronchoscopy (Technical and Practical). By Dr. M. Mann (President). Translated by A. B. Moodie, M.D. Pp. 272. 3s. 6d.

BAERTH, J. ASHROFT, Leipzig. Des Andreas Vesalins feels anatomische Tafeln vom Jahre 1533 in Lichtdruck, neu herausgegeben und der 85. Versammlung Deutscher Naturforscher und Ärzte zur Feier der 400. Wiederkehr des Jahres seiner Geburt dargeboten. Von M. Holl und K. Sudhoff. Pp. 12 and 6 plates. M. 60.

BELL, G., AND SONS, London. Boxing. By Lord Headley (R. G. Allanson-Winn). New ed. revised. Pp. 111. 3s. 6d.

An Introduction to the Structure and Reproduction of Plants. By F. E. Fitch, Ph.D., and E. J. Salisbury, D.Sc. Pp. 453. 15s.

P. BLAKISTON'S SON AND CO., Philadelphia. The Early Embryology of the Chick. By Prof. D. M. Patton. Pp. 167.

BRENTINO'S, 225, Fifth Avenue, New York. Helping the Rich: A Play. By James Bay. Pp. 107.

SPECIAL RESERVE OF OFFICERS.

Major W. Ranson (Colonel), A.M.S., T.F.) resigns his commission. Capt. H. D. Gardner relinquishes the acting rank of Major.

TERRITORIAL FORCE.

Capt. C. Webb is restored to the establishment.
Capt. I. A. C. Fazan, 5th Bn. Royal Sussex Regt., relinquishes his commission in the R.A.M.C. (T.F.).
Major H. Drummond (late R.A.M.C. (T.F.)) is to be Captain and to relinquish the rank of Major.

Capt. H. P. Gabb (late R.A.M.C. S.R.), and J. Rigby (R.A.M.C.) to be Captains.
P. Lloyd-Williams (late Surg.-Lieut., Royal Navy) to be Lieutenant.

ROYAL AIR FORCE.

Medical Branch.—Capt. R. G. J. McCullagh is transferred to noncommissioned list.

Dental Branch.—D. Campbell is granted a temporary commission as Lieutenant.

THE HONOURS LIST.

The following promotions in and appointments to the Most Excellent Order of the British Empire, for services in connexion with the war, are announced:—

C.B.E.—Mr. G. C. Hancock, Dr. A. C. Jordan, Dr. J. S. Low, Mr. W. M. Mollison, Dr. J. Pearce.
O.B.E.—Dr. R. T. Hakewell.

The name of Surg.-Comdr. E. Cameron, R.N., has been brought to the notice of the Secretary of State for War for valuable and distinguished services rendered in connexion with military operations in Somaliland.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Dec. 7th.

SECTION OF SURGERY: SUBSECTION OF ORTHOPEDICS: at 5.30 p.m. (Cases at 5 p.m.)

Cases: The following will be shown by—

Mr. P. Maynard Heath: (1) A Late Case of Birth Palsy; (2) Case of Deformity of the Shoulder.
Mr. Paul Roth: Case of Injury to the Semilunar Bone.

Other cases will be shown.

SECTION OF PATHOLOGY: at 8.30 p.m.

Meeting at the Laboratories of the Medical Research Council, Mount Vernon, Hampstead, N.W.

Communications:

Professor L. Hill, F.R.S.: The Measurement of the Capillary Blood Pressure.

Captain B. R. Douglas: The Serological Races of the Cholera Vibrio.

Dr. W. Mair: Dohler's Bodies in Scarlet Fever and Pneumonia.

Mr. J. P. Barnard: The Use of Ultra-violet Light in the Differentiation of Animal Tissues.

Dr. L. Colbrook: Actinomyces.

Major H. W. Acland: The Formation of the Ganetocyte of Benign Tertian Malaria.

Dr. Lovatt Evans: A Method for the Determination of the Reaction of Blood.

Thursday, Dec. 9th.

SECTION OF BALNEOLOGY AND CLIMATOLOGY: at 5.15 p.m.

Papers:

Dr. Max Porges: On Mud Baths and Nephritis (communicated by Dr. C. F. Sonntag).

Dr. J. Hernandez-Johnson: On the Importance of Combined Methods in Diagnosis and Treatment.

Dr. S. Burridge: On Some Possible ill-effects of Barium Waters.

Members of the Section, with guests, will dine together at the Welbeck Palace Hotel, Welbeck-street, W., at 7 p.m. Those intending to do so are requested to send their names to Dr. C. F. Sonntag, 80, Belgrave Park-gardens, N.W.5, not later than the last post on Dec. 8th.

SECTION OF NEUROLOGY: at 8.30 p.m.

Paper:

Dr. Farquhar Buzzard: Tabes—its Early Recognition and Treatment.

Friday, Dec. 10th.

CLINICAL SECTION: at 5.30 p.m. (Cases at 5 p.m.)

Cases:

Mr. F. J. Stoward: Two Cases of Epithelioma of the Mouth Treated by Diathermy.

Mr. C. Max Page: Cases of Injury to the Carpal Bones.

Other cases will be shown.

SECTION OF OPHTHALMOLOGY: at 8.30 p.m. (Cases at 8 p.m.)

Cases and Exhibits: The following will be shown by—

Mr. H. Neame: Leptospira Involving the Conjunctiva.

Mr. N. Bishop-Harnan: (1) Unilateral Leontiasis Ossea and Optic Atrophy; (2) A New Sclerometer.

Mr. A. C. Hindon: A New Perimeter.

Mr. W. H. McMillen: Implantation Cyst of Iris.

Mr. R. T. Laing: A New Sclerometer.

Members of the Section are invited to show cases or exhibits.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Dec. 6th.—8.30 p.m., Discussion on the Surgical Treatment of Malignant Disease of the Colon, introduced by Sir Berkeley Moynihan. Followed by Sir W. Arbuthnot Lane, Mr. G. Wright, Mr. Lockhart-Mummery, Mr. G. G. Turner, and Mr. H. W. Carson.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY, Dec. 6th.—5 p.m., Bradshaw Lecture.—Sir Berkeley Moynihan. The Surgery of the Diseases of the Spleen.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.

MONDAY, Dec. 6th.—2 p.m., Dr. Morton: X Ray Department. 5 p.m., Lecture.—Mr. B. Harnan: Tuberculous Affections of the Eye.

TUESDAY, 10 a.m., Dr. McDonald: Electrical Department. 5 p.m., Lecture.—Mr. Addison: Tuberculosis, Adenitis, Lymphadenoma, Sarcoma and Carcinoma of Glands.

WEDNESDAY, 11 a.m., Mr. MacDonald: Demonstration of Cystoscopy. 5 p.m., Lecture.—Mr. D. Armore: Arthritis.

THURSDAY, 2 p.m., Mr. Bahwald: Orthopaedic Department. 5 p.m., Special Lecture.—Dr. F. J. Forster: On the Study of Heart Disease (open to all medical practitioners).

FRIDAY, 2 p.m., Dr. Perrot: Skin Department. 5 p.m., Lecture.—Mr. Gibb: Rheumatic Affections of the Eye.

SATURDAY, 10 a.m., Dr. Arthur Saunders: Medical Diseases of Children. 12 noon, Mr. Sinclair: Surgical Diseases of the Abdomen.

Daily, 10 a.m., Ward Visits. 2 p.m., In-patient, Out-patient Clinics and Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Special Post-Graduate Course from Dec. 6th to 18th:—

MONDAY, Dec. 6th.—10.30 a.m., Mr. H. W. Carson: Recent Advances in Gastric Diagnosis. 11.45 a.m., Dr. A. J. Whitting: Graphic Method in Heart Disease (Principles). 2 p.m., Mr. N. Fleming: Cases illustrating the Effects of Specific Disease on the Eye. 4.30 p.m., Lecture.—Dr. J. Eyre: Some Applications of Bacteriology to Medical and Surgical Practice (Antem).

TUESDAY, 10.30 a.m., Mr. T. H. C. Benliss: The Laboratory Investigation of Female Cases. 11.45 a.m., Mr. J. H. Evans: The Determination of Lesions of the Kidney and Ureter. 2 p.m., Mr. C. H. Hayton: Cases of Disease of the Middle Ear. 4.30 p.m., Lecture.—Mr. J. B. Banister: Version in Obstetric Practice, its Use and Abuse.

WEDNESDAY, 10.30 a.m., Dr. J. B. Alexander: Cystitis in Diagnosis. 11.45 a.m., Mr. A. J. Whitting: Graphic Method in Heart Disease (Principles). 2 p.m., Dr. C. B. Sundell: Cases of "Asthma" in Children. 4.30 p.m., Lecture.—Dr. W. H. B. Stoddart: Methods of Psychotherapy.

THURSDAY, 10.30 a.m., Mr. C. H. Hayton: Laryngoscopy and Rhinoscopy. 11.45 a.m., Dr. A. J. Whitting: Graphic Method in Heart Disease (Principles). 2 p.m., Mr. H. W. Carson: Types of Hernia requiring Radical Cure. 4.30 p.m., Lecture.—Dr. J. Metcalf: Calculi in the Urinary Tract—Their X Ray Diagnosis (Antem).

FRIDAY, 10.30 a.m., Mr. N. Fleming: Medical Ophthalmology. 11.45 a.m., Mr. W. E. Tanner: The Estimation of Renal Function. 2 p.m., Dr. J. B. Alexander: Cases illustrating the After Effects of Diseases Due to the War. 4.30 p.m., Clinical Consultations (General Hospital).

SATURDAY, 11 a.m., Dr. F. Thomson (at the North-Eastern General Hospital, St. Ann's-road, N.): Cases illustrating the Early Diagnosis of Infectious Fevers.

Each Day:—3.4 p.m., General Hospital Work.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C.1.

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TUESDAY, Dec. 7th.—2.30 p.m., Out-patient Clinic: Dr. Grainger Stewart. 3.30 p.m., Lecture.—Dr. Hinds Howell: Intracranial Abscess.

WEDNESDAY, Dec. 8th.—2 p.m., Lecture. 3.15 p.m., Lecture.

THURSDAY, Dec. 9th.—2.30 p.m., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 p.m., Lecture.—Dr. Saunders: Tumours of Spinal Cord.

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THURSDAY, Dec. 9th.—4 p.m., Lecture.—Mr. Addison: Urinary Calculi.

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MONDAY, Dec. 6th.—5.30 p.m., Post-Graduate Lecture.—Dr. H. Wells: Prognosis in Heart Disease.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY, Dec. 9th.—6 p.m., Chesterfield Lecture.—Dr. W. K. Bailey: Syphilis.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC, TOWN-HALL, MANCHESTER.

TUESDAY, Dec. 7th.—4.30 p.m., Lecture.—Dr. A. Bantelmann: Diagnosis and Differentiation of Cardiac Irregularity by Ordinary Physical Examination.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

THURSDAY, Dec. 9th.—4.30 p.m., Dr. Starrock: Referred Pain. (At Salford Royal Hospital.)

desirable features as well as many extremely controversial ones. The first is that the public has shown, and the medical and allied professions have shown, an entirely new interest in health legislation. The other is that if the Minister does not consult all those concerned in providing the services which he disposes of during the formative stages of health legislation he not only goes to the House of Commons without the backing of the medical and allied professions, but actually forces those professions into a position of antagonism. Yet is the Minister of Health so much to blame for this failure to consult us? Let us hear what he has to say on the matter. In reply to a deputation of the B.M.A. which asked that the medical profession should be consulted by him, Dr. Addison stated on Nov. 1st: "If you want us to consult you, get busy and set up some machinery whereby you can readily be consulted." He also added that "he quite agreed as to the reasonableness of consultation, in the formative stages, regarding regulations or conditions or general principles if some machinery for consultation were available; but he would not consult half-a-dozen different bodies, each claiming to represent the profession." He pointed out to the deputation that "although there was a local branch of the B.M.A. in each area, there were other local medical associations and societies as well, and there were also a number of doctors who stood outside all organisation."

The Health Services and their Varying Outlook.

Now let us review our position. The Register shows that there are 37,795 registered medical practitioners in Great Britain. In addition there are 6000 registered dentists, 10,000 pharmacists, 30,000 trained nurses, and 44,160 registered midwives. These 127,955 members of the community are those who provide the professional sections of the health services of the country. This total does not include masseurs and several other specialised types of workers, nor does it include the thousands of lay helpers who give their services on the voluntary committees of hospitals and similar institutions, welfare workers, health visitors, and many others. All these different groups have organised themselves into societies representative of their particular interests—doctors alone, whose work is necessarily the backbone of the health services, have formed more than 200 separate bodies representative of the many specialised branches of their work. We have, for instance, societies representative of factory, colliery, and other industrial forms of practice, of Poor-law medical officers, of those in general practice amongst the poor and amongst the well-to-do, of medical officers of health, school doctors, research workers, specialists, consultants, and those in the Navy, Army, and Air Force.

Obviously, each of these groups must view matters of health legislation from widely different angles, and, although each may well represent expert opinion in regard to its particular interest, no one of them can speak for the profession as a whole. It is only by providing the means of collectively consulting all these different bodies, both in the medical profession and in the allied professions, that their views can be made available in the guidance of public opinion and in the formative stages of health legislation.

A Clear Case for Federation.

We have, then, a clear case made out for some form of federation for all those providing the health services of the country. Let us consider what conditions are essential to the success of such a federation of bodies. In a federation no one body can be dominant; all must coöperate on equal terms, except that representation in proportion to numbers is possible; the office of a federation must be distinct from the offices of the constituent bodies; its officials must also be distinct from those of the organisations coöperating; this central body needs no extensive accommodation or large funds; a federation, as such, should have no policy of its own, its policy is formed by the constituent bodies; it should possess no executive powers; indeed, it is subordinate to the smallest of its component bodies; it should be merely the means to an end, the willing servant of its constituents in furthering the objects for which they have joined forces.

We find that no existing medical organisation can fulfil these conditions, and for the following reasons: (1) there is no existing body in the medical profession which represents much more than half the profession; (2) there is no medical body which gives promise of representing the whole profession within a reasonable time; (3) there is no purely medical organisation which could be made representative of all the other medical bodies and of all the professions whose work is of a nature allied to medicine; and (4) there is no one body whose jurisdiction would be accepted by even a majority of the others. The largest of our purely medical associations—the British Medical Association—has, as you know, under consideration the question of so altering its constitution as to allow of its becoming a federation of bodies as well as an association of individuals. As a member of 18 years' standing in that Association I am as proud as any of my fellow members can be of that body and of what we, through its machinery, have accomplished; but

it fails to satisfy the conditions required. It is not recognised by all other bodies as representing the profession; its functions are limited to the promotion of professional interests alone, and its jurisdiction would not be recognised by a majority of the existing bodies, whether of a medical or allied nature.

The Position of the British Medical Association.

The B.M.A. cannot itself become, or control, a federation of bodies, but it can, together with them, form a federation. Indeed, it is difficult to understand why the Association, already doing such useful work and so fully engaged, should have any desire to imitate the movement which was initiated by the Federation of Medical and Allied Societies, and which has already attained a large measure of success without in any way damaging or reduplicating the existing bodies. As the majority of the members of the B.M.A. are also members of other societies, they are, or will be, represented in the Federation even if that Association continues to hold aloof. By accepting representation in the Federation the B.M.A. cannot in any way merge its individuality (as has been suggested) in that body, for the Federation is not in reality a "body" at all, but a collection of bodies. For the same reason the Federation cannot merge itself in the B.M.A. And, far from overlapping the work of any previously existing body, it fills up a gap in the machinery of the profession by focussing the views of its various sections.

If I thought that the B.M.A. could successfully carry out the arduous task that the Federation is doing to-day for the benefit of the community at large, and not for any one section of the community, I would devote my energies to a more worthy cause. As it is, I feel certain that the B.M.A. not only cannot succeed in the task, but will damage the cause of federation, and its own deservedly good repute, by trying. We must remember that the Association is regarded by the public as a powerful trade union, primarily concerned, as it should be, with the promotion of its members' interests. It can never therefore be considered an impartial body to which the community can look for unbiased judgment.

The Federation of Medical and Allied Societies.

The principles governing the form of coöperation available in the Federation of Medical and Allied Societies are briefly these:—It is a partnership of free and independent societies coöperating for a given purpose; it exercises no control or leadership; it has no policy of its own, its policy being formed by the bodies composing it; it has no politics and it holds no brief for any section of its constituents; it is entirely divorced from Government influence and does not nominate representatives to sit on departmental or other committees.

The societies elected to corporate membership of the Federation are entitled to representation in accordance with their membership. The officers of the Federation are elected by, and from amongst, the representatives of all the constituent bodies. In domestic matters the societies coöperating are urged to take independent action; but the Federation always provides a "conference table" on neutral ground where they may reconcile divergent opinions, and in larger matters action is only taken in the name of the Federation where the constituents have first had an opportunity of expressing their views thereon and only those who have expressed agreement are represented as participating in such action. We find in the organisation of a city fire brigade a close analogy to that available in the Federation. Though all the stations in such a brigade are connected up for simultaneous action when necessary, one or more of them may suffice to deal with an outbreak. It would be prodigal to call out all the stations to deal with a matter that one local station sufficed for, but the fact that the whole machinery of the brigade is behind it will give that section the confidence so essential to success. The Federation does not desire to lead deputations, though it may arrange them and provide the support of all its component bodies, and it might well be that two deputations on a given matter might be expedient in the event of irreconcilable divergence of views, leaving it to the Minister concerned to judge between them. A close watch is kept upon all health legislation and societies concerned are warned in advance when their particular subject is becoming a public one, so that they may communicate their views. Moreover, the Federation, holding that a strong medical party in Parliament is a national asset, aims at increasing the number of medical candidates and is able to render them material assistance, by getting into touch through the constituent bodies with all the members of the medical and allied professions in the constituency, by arranging for speakers, the loan of cars, and in other ways. This assistance is, moreover, given irrespective of party. Now that there exists a "Medical Committee of the House of Commons," behind which the Federation stands, to maintain its members in full knowledge of the contemporary views of the medical and allied professions and to act as a liaison committee between it and the professions outside. In order that these functions may be effectively performed and that close touch may be maintained, the medical committee in

influenza (23); there was not a single death from small-pox, measles, or diphtheria, and only 1 from malaria. Among the cholera, 5 from typhoid, and 6 from malaria. In 1918 Chinese the most fatal affections were pneumonia (1995 deaths) and phthisis (980); there were also 449 deaths from influenza, 425 from plague, and 551 from beri-beri. In 1918 there had been a severe outbreak of cerebro-spinal fever (1232 cases and 963 deaths); in 1919 there were 269 cases and only one in the European community, with 204 deaths. There were 46 notifications of cholera, only one European, with 42 deaths; but in addition there was a prevalence of gastro-enteritis during the year "of choleraic type," which caused 339 deaths; these cases "were regarded as cholera," though definite bacteriological evidence was wanting. Dr. H. B. Parker, however, in his report on the work of the Bacteriological Institute (p. 70) states that "the vibrio was found in about 35 per cent. of fatal cases, and there was strong presumptive evidence that the organism failed to grow from cases that really were cholera. It is almost fair to assume, therefore, that at least 50 per cent. of the fatal cases of gastro-enteritis were cases of cholera."

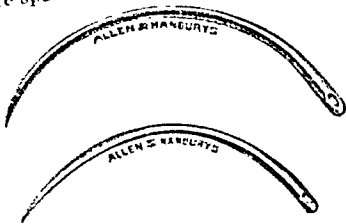
There were 464 cases of plague, all Chinese but one, with 426 deaths; in 1918 there had been 266 cases with 251 deaths. All the cases but eleven occurred in the five months, March to July inclusive; and in these same months (242) found to be infected out of the total number (242) found infected during the year. The report on public health is signed by Dr. J. T. C. Johnson, principal civil medical officer, and Dr. W. W. Pearce, medical officer of health. This is followed by other reports dealing with the large amount of medical and surgical work carried out in the various hospitals and dispensaries of the colony. It is interesting to learn that trains on the Kowloon-Canton railway are now fitted with stretcher cots, which have already proved their value in the transport of several severe accident cases to Kowloon station, and thence by ambulance to hospital, without any disturbance of the patient, all fittings being of uniform size. In the report on the Civil Hospital at Hong-Kong (p. 30) it is stated that "the total number of admissions was 3926. This includes 171 patients brought over from 1918." This is not according to the usual statistical practice, nor can it be considered to be correct. A patient admitted in 1918 should be returned as an admission in 1919 unless he has left the hospital and been readmitted. The figures are shown correctly in the table that follows the report.

A DISTRESSING CASE.

To the Editor of THE LANCET.
Sir.—Dr. McA. is 75, has hemiplegia, and has now developed sarcoma of the jaw. He and his wife, who is 86, draw Old Age Pensions, which with the help from the Royal Medical Benevolent Fund enable them to exist. But comforts are also necessary, and it is hoped that some who read this will send a donation to the Honorary Treasurer, R.M.B.F., 11, Chandos-street, Cavendish-square, London, W.1. A medical friend at Norwood will see to the proper distribution of any gift.—I am, Sir, yours faithfully,
CHARLES J. SYMONDS.
Nov. 29th, 1920.

SQUARE-BODIED NEEDLES.

SOME six years ago I had made to my special measurements both round-pointed and cutting curved needles, with square bodies, in sizes 9, 12, 15, and 15 fine. The ordinary curved cutting needles are usually made with either a flattened or too weak a shaft, so that in the smaller sizes they are often unequal to the strain put upon them. They are specially liable to break when used in dense fascias, scar tissues, and particularly in the cervix, with annoying consequences. The round-pointed surgical needles usually supplied have always suffered from the disadvantage that, having round bodies, they frequently tend to turn in the needle holder. The square body obviates this and, while in no way affecting their general utility, makes it possible to use them in all except fascial structures with much less injury to tissues and vessels than with cutting needles. The continuous use of these needles has impressed upon me their advantages, and suggests to me that if known they would be extensively used. They should have ordinary eyes with the exception of No. 15 fine, which is spring-eyed and used for gut work.



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COLOUR-BLINDNESS.

LECTURING on "Colour-Vision and Colour-Blindness" before the Royal Society of Arts on Nov. 24th Dr. F. W. Edridge-Green, special examiner in colour-vision and eye-sight to the Board of Trade, said that the case which first drew general attention to colour-blindness was that of Dalton, who wore his scarlet gown of a doctor of civil law at Oxford for several days in the street, imagining it to be the colour of evergreens, and its pink lining to be sky-blue. Colour-blindness, however, is not a sufficiently comprehensive term, as although there is in some cases blindness to colour, in ordinary varieties of the condition colours are clearly seen as colours, the defect being in power of differentiation between them. Men employed in the marine and railway services must be able sufficiently to define and distinguish between the standard red, green, and white lights used for signals on sea and land. It is well to test children early, so that occupations may be avoided in which an accurate colour-sense is necessary. The wool test is now obsolete, as it allowed over 50 per cent. of dangerously colour-blind persons to pass, and over 50 per cent. of normal-sighted persons to be rejected wrongly.

HOME NURSING AT A MODERATE COST.

THERE is an increasing number of people who have hitherto been debarred from skilled attention when ill at home because they are unable to pay for or accommodate a private nurse, and who are at the same time ineligible for a district nurse. A constructive memorandum recently issued by the Central Council for District Nursing in London makes two useful suggestions. One is that those who can pay but cannot house a private nurse should be catered for by cooperative organisations of nurses residing together in a hostel, on a profit-earning basis. A scale of charges is proposed—3s. 6d. a day, or £1 a week for a daily visit, 5s. a day, or 30s. a week for two daily visits—on which it is estimated that "with a due and manageable number of patients," the weekly earnings of a nurse should be from 4 to 6 guineas weekly. We throw out a suggestion that attendance between 8 A.M. and mid-day would probably be worth a higher fee to the patient than visits at any other time. There remain those who are unable to afford the ordinary fees of a private nurse; and a scheme of attendance for fees, on a slightly lower scale than the above, is recommended for the consideration of District Nursing Associations in London.

THE ASTRAL INTENSIFIER.

AN improvement in the illuminating power of the electric lamp is effected by this ingenious reflector. It is conical and is fitted with a silvery surface, which admits of focusing the light. By adjustment over the lamp a lighting effect is produced similar to that of the indirect lighting system. The illuminating power on a given area is increased. In experiments reported by the Illumination Testing Laboratory authorities, the illumination on a screen vertically below a 60-watt Edison lamp placed at a distance of three feet from it was measured and found to be 24 foot candles, whereas, when the "intensifier" was removed, the illumination was found to be only 0.7 foot candle. This amounts to a gain of illumination equal to 34 times greater with the "intensifier" attached than without it. At the same time the light is well diffused and agreeable to the eye. The reflector is not a mirror in the ordinary sense, for while directing the light where it is wanted, it produces also a pleasing diffusion. The increased illumination obtained suggests the application of the "intensifier" in medical and surgical practice, in the consultant's room, and in the hospital ward and operating theatre.

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the House is represented on the executive council of the Federation by its secretary, Captain W. E. Elliot, M.P., and, with one exception, all the medical members of Parliament, numbering ten, are also individual members of the Federation.

A Body of Expert Opinion.

The collated expression of opinion of the bodies representative of all branches of medical practice and of all the allied professions and their various branches, will provide a weight of expert opinion invaluable to the community and helpful to the Government in framing health legislation. Already most sections of medical practice and all the chief representative societies of dental surgeons, pharmacists, nurses, and midwives are co-operating in the Federation which actually has united for common action over 100,000 of those providing the health services. It should, therefore, be our concern to so utilise the means available as will ensure that consultation with the united professions shall, in the public interest, be a necessary preliminary to Parliamentary executive action.

Finally, I would emphasise the importance of keeping in close touch with the other important interests in the State—its employers, to say the other estates of the realm—"as few of these have without their medical aspect, and their co-operation in health matters is necessary to give us a right perspective. To meet this need steps are now being taken which will lend, we hope, to the setting up of a strong "citizens' committee" of the Federation which will be available to act as a liaison committee between the Federation and the general public. Several prominent public men and women have already agreed to serve on this committee.

SECONDARY SEXUAL CHARACTERS IN BIRDS.

PHYSIOLOGISTS seem to be fairly unanimous in their view that all secondary sexual characters—a phase we owe to John Hunter—are dependent on the internal secretion from the testes. It would appear, however, that in birds, at least, this broad generalisation requires some modification, if we may judge from the results of experiments made by A. Pézard on the domestic cock in the laboratory of Professor B. Gley, of Paris (Travaux du Laboratoire, Collège de France, t. iv.). The author uses the term "hormozone" to indicate the said internal secretion, which has a "morphogenic" effect, and is necessary for the maintenance at any rate of certain so-called secondary sexual characters. Sexual dimorphism is well marked in many birds. The common cock is distinguished by its cephalic erectile organs—its comb, wattles, and appendages round the ear orifices—all very vascular; by its spurs, its plumage, its character—its vocal efforts in crowing, its impulsive sexual instincts, and its bellicose attitude—it is essentially a fighter with other males. In some animals certain of the secondary sexual characters are temporary—e.g., sexual instincts and their "cry" being manifested only during reproduction. In insects secondary sexual characters seem to be independent of the testes. Mons. Pézard's experiments show that not all these secondary sexual characters are modified by early castration of the male (2-3 months)—i.e., before puberty. The comb, wattles, and ear annexes are profoundly influenced by this early castration. These erectile organs in the capon are small, badly developed, almost bloodless, and have a pallid, flabby appearance. When they are injured they almost no bleeding, the blood sinuses being slightly developed as compared with the normal male. The growth after castration is but slight and corresponds to that of the rest of the body. The sexual instincts and voice-crowling—are profoundly affected, or rather these characters are not developed. The capon is gentle, quiet, and slow, is not bellicose, does not affect the hen birds, and normal cocks do not offer combat to the capons. As to plumage, however, the capon has essentially the same development, characters, and brilliancy as the normal male—its capuchin, sickle-like, curved, large tail feathers and the narrow, pointed ones on each side in front of the caudal plumes. Neither feathers nor spurs are affected by ablation of the genital glands in the male of *Gallus domesticus*, or apparently the golden and silver pheasants. Whereas in pro-puberty castration sexual instincts are not developed, when castration takes place after puberty the sexual impulse is immediately lost. The cock becomes a capon; the erectile vascular organs on the head, comb-wattles—in a few weeks lose all their pronounced vascular characters, become almost bloodless, and steadily diminish in size according to a law formulated by Mons. Pézard. Castration after puberty in no way affects the plumage, nor are the spurs modified; they grow at the normal rate (2 mm. per month) in spite of the absence of the male genital gland. Moulting occurs as before, and at the next moult the plumage is not modified.

Determination of the Period of Development of Interstitial Tissue in Birds.

Testicular tissue is easily transplanted; nodules grow and after a time influence the secondary sexual characters; there

is rapid growth of the comb, the voice and sexual instinct return at the end of several weeks, and as in other endocrine glands a relatively small part of the gland suffices. Histological examination of the testis shows that the development of the interstitial tissue precedes spermatogenesis, but it does not follow that this tissue conditions the secondary sexual characters in the cock. Post-puberty castration indicates that a hormone must be constantly added to the blood to maintain certain sexual characters, instincts, and the erectile organs on the head. It is therefore necessary to determine if the interstitial gland persists during sexual activity. It was found that sexual growth of the comb and the male instincts appear at the moment when there is almost no interstitial tissue, so that the author concludes that these characters cannot be ascribed directly to this tissue in the cock, and are to be referred rather to processes associated with spermatogenesis. The author arrives at the conclusion that in birds the histo-physiological differentiation of the testis is not so specialised as in mammals. The interstitial tissue is developed in young birds, and always in relation with spermatogenesis, but not with secondary sexual characters. The internal secretion of the testis in this group seems to be localised in the germinal cells or in the cells of Sertoli. The same would appear to obtain in batrachians. The repeated injection of an aqueous extract of the interstitial tissue of the cryptorchid of the boar into castrated males causes the reappearance of secondary sexual characters, morphological or physiological, suppressed by castration. The interstitial gland appears to be the substratum of a hormone whose morphogenic action is general, and apart from its zoological source. A new question arises—On what do the secondary sexual characters, which are not conditioned by an internal secretion of the testis, depend?

The Inhibitory Action of the Ovary.

Turning to the effect of ovariectomy, as a result of suppression of ovarian products in the hen, the spurs begin to grow even in a few days and the male characteristics of the plumage throughout (tail feathers, &c.) appear not at once but after the first moult, and the general appearance resembles the male bird. There is but little effect on the erectile organs. The masculinised hens are not treated as females by the other males, and they do not acquire the male instincts. An incomplete ablation of the ovary does not result in masculinisation. A fragment of the organ left in situ suffices to replace the whole organ, as there was an endocrine secretion "du luxe." The ovary normally exerts an inhibitory action on the development of the plumage and spurs in the hen, and these characters are not to be regarded as secondary male sexual characters. They are simply somatic characteristics and it is really their absence in the female which contributes together to the secondary female sexual characters. Transplantation of the ovary in a young cock leads to a diminution of growth of the spurs, and hinders the acquisition of the plumage so characteristic of the male.

PUBLIC HEALTH AND HOSPITALS IN HONG-KONG, 1919.

THE area subject to the control of the Sanitary Board at Hong-Kong consists of the island itself (about 32 square miles) and the opposite mainland, as far as the range of the Kowloon Hills (about 16 square miles). The greater part of the "New Territories" (about 266 square miles) is outside the Board's jurisdiction. The civil population of the whole colony was estimated in 1919 to be 593,100, of whom the non-Chinese, chiefly British, Portuguese, Indians, and Japanese, number 13,600. Over a million persons, mostly Chinese, entered and left the colony during the year either by river steamers or by the Kowloon-Canton railway. The birth-rate among the non-Chinese was 20.6 and the death-rate 21.9 per 1000; the former being slightly below the corresponding ratio for 1918 (22.07), and the latter somewhat higher than in that year (19.5), and considerably higher than in 1917 (14.0). The birth-rate among Chinese is estimated at (approximately) 63 per 1000, but "owing to the Chinese custom of not registering births before the children have lived for one month, and also owing to the constant flow of people to and from the mainland, many births which occur here are not registered. Every year a large number of children of about one month of age and less are left when sick at the various convicts or abandoned dead in the streets, hillside, and harbour. The number of such during 1919 was 1192." The general death-rate was 23.2, compared with 21.4 in 1918 and 3.4 in 1917; for non-Chinese the ratio was 21.9, being higher than in 1918, when it was 19.5, and much in excess of the ratio for 1917 (14.0 per 1000). The exclusion of the Navy and Army from these statistics increases both the birth- and death-rates for Europeans and Indians.

The chief diseases that caused death among the British and foreign community were pneumonia (43), phthisis (26), and

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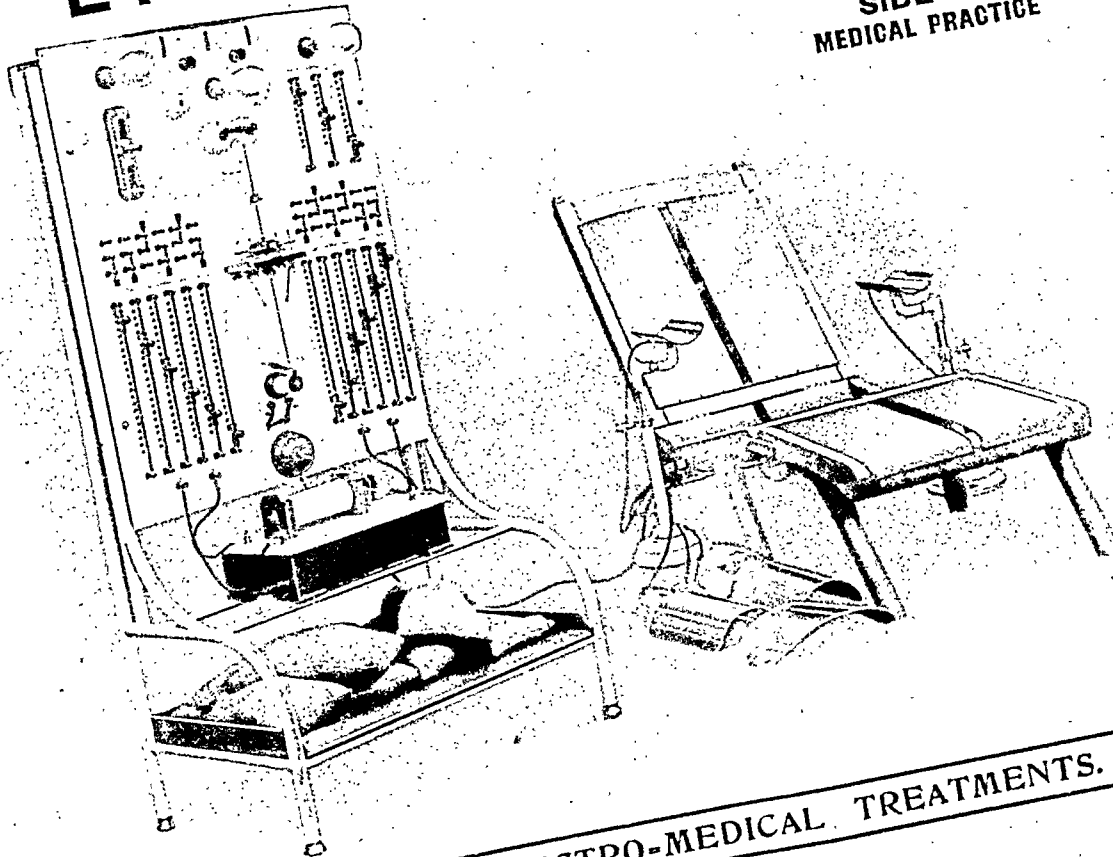
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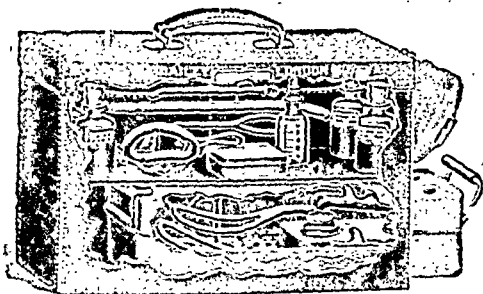
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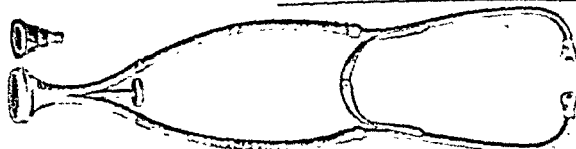
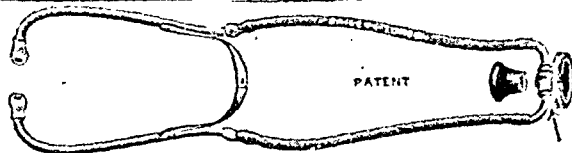
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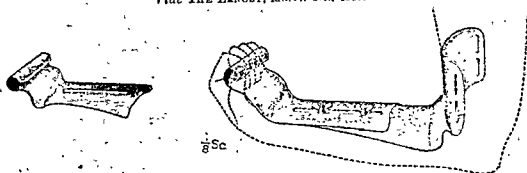
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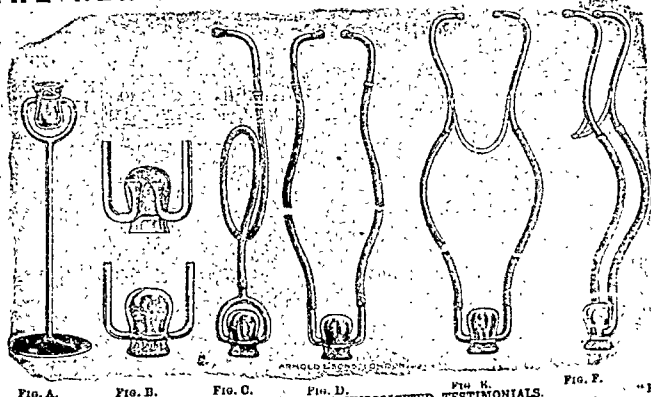
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Vide: THE LANCET, Vol. I. (1920), No. XX., pp. 1074, May 15th.
THE MEDICAL PRESS, Vol. OLX. (1920), No. 4225, April 23th.
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The next Course of Instruction will be conducted in the new laboratories of the School. Next Course will commence January 10th, 1921. The date of the D.T.M. Examination is March 29th, 1921. For further particulars apply to the Secretary, School of Tropical Medicine, University of Liverpool.

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A Special Course for Students who intend preventing themselves at the Additional Examination to be held on February 11th, 1921, will begin on Monday, December 13th. Further particulars may be obtained from the Dean, Professor Wm. Wright, M.B., D.Sc., F.R.C.S., Mile End, E. 1.

Royal Society.—Government Grant

for SCIENTIFIC INVESTIGATION.—Applications for the year 1921 must be received at the Offices of the Royal Society not later than January 1st next, and must be made on printed forms to be obtained from the CLERK TO THE GOVERNMENT GRANT COMMITTEE, Royal Society, Burlington House, London, W. 1.

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Friday, December 17th, at 2 P.M.—"Venereal Diseases of the Eye and their Treatment." By Mr. Frank A. Juler, F.R.C.S.

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Further particulars may be obtained from Mr. J. B. PURVIS, Public Health Chemical Laboratory, Cambridge.

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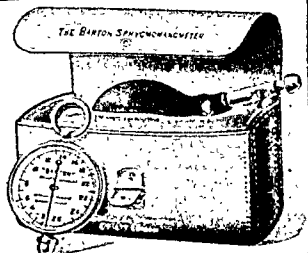
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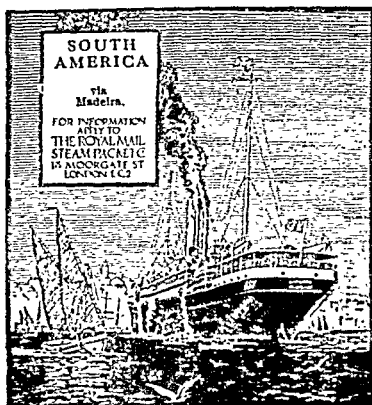
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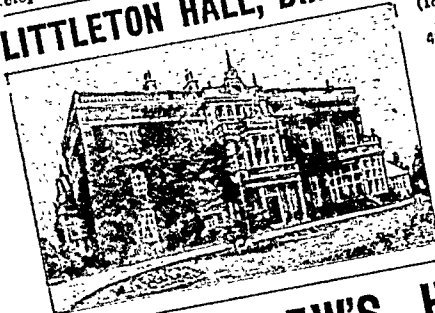


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This Institution is exclusively for the reception of a limited number of PRIVATE PATIENTS of both sexes, of the UPPER and MIDDLE CLASSES, at moderate rates of payment. It is beautifully situated in its own grounds, on an eminence a short distance from Nottingham, and commands an extensive view of the surrounding country; and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted.
For terms, &c., apply to the Medical Superintendent.

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BRUNTON HOUSE, LANCASTER.
There are now a few vacancies in this well-appointed private establishment. It is easily accessible from Lancaster, overlooks More Ambey Bay, and possesses extensive gardens and grounds, with tennis and croquet lawns. Varied scholastic and manual instruction. Individual attention is given to pupils by experienced staff under a Resident Physician and Lady Matron. Terms on application to Dr. W. H. COTTELL.

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CERTIFICATED HOSPITAL NURSES (Male & Female) AVAILABLE DAY & NIGHT FOR MEDICAL, SURGICAL, MENTAL, AND ALL CASES.
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An old established home-like Institution for the treatment of MENTAL AFFECTIONS in BOTH SEXES.
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Under the Management of a Committee of the Corporation of the City of London.
PRIVATE PATIENTS are received at the rate of Two or Three Guineas weekly.
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A PRIVATE MENTAL HOSPITAL FOR THE CARE AND TREATMENT OF MENTAL AND NERVOUS CASES OF BOTH SEXES
EITHER VOLUNTARY OR UNDER CERTIFICATES, preference being given to Recoverable Cases.

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Private Apartments on special terms.

Situated mid-way between Manchester and Liverpool. Two miles from Newton-le-Willows Station on the L.N.W.Rly., and close to Ashton-in-Makerfield Station on the G.C.Rly. in direct communication with Manchester.

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Visiting and Consulting Physicians—Sir JAMES BARR, LL.D., M.D., F.R.C.P., 72, Rodney Street, Liverpool; G. E. MOULD, Physician for Mental Diseases to the Sheffield Royal Hospital, The Grange, Rotherham.

For further particulars and forms of admission apply Resident Medical Proprietor, Haydock Lodge, Newton-le-Willows, Lancs.

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Situated on the slope of a Pine Forest with sunny southern exposure and sheltered from high winds.

The Institution is fully equipped with Research Laboratory, Throat Room, Dental facilities; and new and powerful X-ray plant.

Treatment by Artificial Pneumothorax (with X-ray control), the various Tuberculins, Autogenous Vaccines, and Massage by qualified Masseuse, &c., are employed in suitable cases without extra charge.

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Inclusive terms £9 : 9 : 0 per week.

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TREATMENT AVAILABLE BY ARTIFICIAL PNEUMOTHORAX.

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Sister and full Nursing Staff. Trained Nurse on duty all night.

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For particulars apply to Dr. J. M. GERATT, Medical Superintendent, Pendyffryn Hall, Penmaenmawr, N. Wales.

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On the East Cliff,
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Within Easy Access of
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Suite of Baths equipped with the most Modern Installation and Appliances for Scientific Medical Treatment—comprising Turkish Bath, Russian Vapour Bath, Radiant Light & Heat, High-Frequency & Sinusoidal Current, also Professor Bergonié's Apparatus for the Treatment of Rheumatoid Arthritis, Muscular Affections, Spinal Curvature, Colitis, Neurasthenia, &c.

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Six acres of ground, highly situated, facing Finsbury Park.
Voluntary Boarders received without certificate. Seaside Branch at Worthing.
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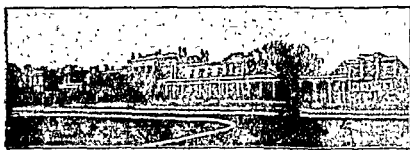
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Established
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Telegrams: "Alleviated, London."

An Institution licensed for the CARE and TREATMENT of the MENTALLY AFFLICTED of Both Sexes. Conveniently situated. Electric trams and omnibuses from the Bridges and West-End pass the House. Private houses with electric light for suitable cases adjoining the Institution. Holiday parties sent to the Seaside branch at Worthing during the Summer months. Moderate terms.—Apply to Medical Superintendent for further particulars.

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CAMBERWELL HOUSE, 33, PECKHAM RD., LONDON, S.E. 5.

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Telephone: New Cross 1067.

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Completely detached Villas for MILD Cases. Voluntary Boarders received. 22 acres of grounds including extensive allotments on which gardening is encouraged. Tennis, croquet, squash racquets, and all indoor amusements. Daily Services in Chapel. Senior Physician: FRANCIS H. EDWARDS, M.D., M.R.C.P. An Illustrated Prospectus, giving full particulars and terms, may be obtained on application to the Secretary.

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A Convalescent Branch of the above, to which also suitable patients may be sent on holiday.

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KENLAW HOUSE, Colinsburgh, FIFE

Climate dry and bracing. Within easy reach of St. Andrews and Elie.

PSYCHO-THERAPEUTIC, RE-EDUCATIONAL, and OCCUPATIONAL TREATMENT.

Two hundred acres of grounds, including private nine-hole golf course; extensive gardens; workshop.

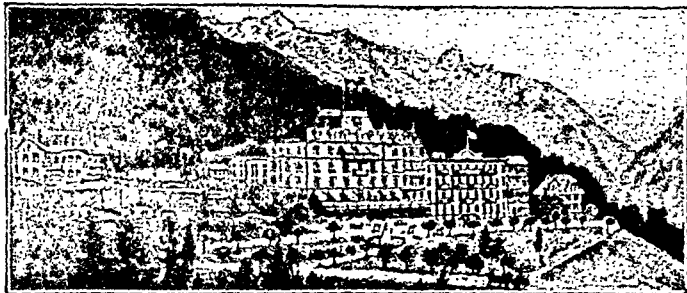
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For particulars apply to the Resident Physician, W. H. DRYCE, M.B., C.M., or to the SECRETARY.

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PALACE HOTEL, MONTANA-SUR-SIERRE, SWITZERLAND.



TUBERCULOSIS CURE STATION (All the Year).

THE FINEST IN EUROPE.

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ADVANTAGES

Mineral Waters which cannot be obtained elsewhere. Mineral Waters like those of France, Germany, and England, but stronger: weak in purgative and chalybeate waters only.

Most Potent Baths in the World, without any reservation.

Volcanic Mud Baths.

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Unique Variety of mineral water for **Internal Administration** (drinking).

All Modern Balneological, Electrical, and Massage treatments, skilled operators and medical attendance.

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Picturesque Maori Life.

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HEALTH RESORT for TUBERCULOSIS OPEN ALL THE YEAR.

In 1919: 19,508 Visitors, with 953,223 Days of Residence.

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5200 feet above sea-level.

Best results in the treatment of acute and chronic catarrhal and infiltrative Affections of the Lungs, chronic bronchial catarrh, pleurisy with residual exudate, asthma nervosum, scrofula, chlorosis, neurasthenia, malaria, Graves' Disease, convalescence.

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Small English Pension run on Sanatorium lines.

Apply Mrs. DONNER (late of Villa Gentiana).

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MATLOCK. Established 1853.

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A HOSPITAL FOR MENTAL DISEASES,
CHEADLE, CHESHIRE.
AND ITS SEASIDE BRANCH,

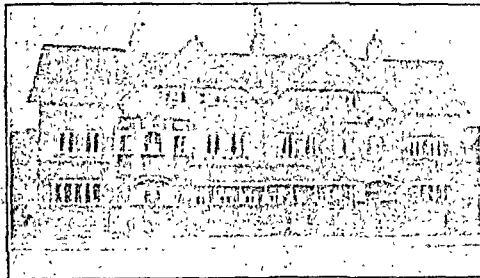
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The object of the above is to provide the most efficient means for the cure of mental diseases in those who belong to the upper and middle classes.

Voluntary boarders as well as certified patients are received for treatment.

For terms and further information apply to the Medical Superintendent, J. SURCUFF, M.B.C.S., &c., at Cheadle, or he may be seen at 72, Bridge-street, Manchester, on Tuesdays and Fridays from 2 to 5.

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The Home is devoted entirely to

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The Home is specially equipped for this work and no septic cases of any kind are admitted. Expert and Special Staff of Nurses.

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Fallowfield, Manchester.—There are a few VACANCIES in the Nurseries for Infants and Little Children. Every care and attention. South aspect. Large garden. Terms on application to the Principal.

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**7, LANSDOWN CRESCENT.
THE ST. CATHARINE NURSING HOME.**

Beautiful position. Electric light and lift. Central heating. Dietetic and electrical treatment. Plombières douche. All chemical investigations. Telephone: 1119. Telegrams: "Nursing," Bath.

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TREATMENT OF DISORDERS
OF THE STOMACH AND
INTESTINES, INCLUDING
TROPICAL DISEASES; DIABETES

and other complaints which need skilled chemical, bacteriological and protozoological investigation and dietetic treatment.

The House is fitted with Laboratories, X Ray Installation, Medical Baths, Central Heating, and Lifts.

The climate is mild, and the rainfall the lowest in Scotland.

Apply, THE SECRETARY, Duff House, Banff

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Colthurst House School,

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Under the Management of the Committee of the David Lewis Colony. Home Life, Medical Care, School Education, most suitable for boys subject to Epilepsy. Terms 42s. weekly. Further particulars may be obtained from Dr. ALAN McDONAGH, The Colony, Warford, Alderley Edge.

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Stand in its own grounds of 130 acres and is situated in a beautiful part of Cheshire, 2½ miles from Alderley Edge Station, and 14 miles from Manchester. Electric light throughout. The Colony system ensures the social life and employment most suitable for those who suffer from Epilepsy. Patients certifiable under the Lunacy or Mental Defective Acts are NOT ELIGIBLE for admission. Two Resident Physicians. Terms for Middle and Upper-class Patients, from 42s. a week upwards, according to accommodation and requirements. Private rooms can be provided.

For further information apply to the Director, Dr. ALAN McDONAGH, Warford, near Alderley Edge, Cheshire.

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Medical Attendant ROBERT SEVIERE, M.A., M.D., Cantab.

Principal; HENRY M. RILEY, Assoc. Soc. Study of Inebriety.

Thirty years' Experience. Excellent Medical References.

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INEBRIETY.

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For the treatment of Gentlemen under the Act and privately. Established 1833 by an association of prominent medical men and others for the study of inebriety; profits, if any, are expended on the institution. Large secluded grounds on the banks of the river Colne. All kinds of out-door and in-door recreations and pursuits.—For particulars, apply to F. S. D. HOGG, M.R.C.S., &c., Resident Medical Superintendent.

DROITWICH BRINE BATHS WARNING.

The Public are warned that the full benefits of the treatment for Rheumatism and kindred complaints CAN ONLY BE OBTAINED IN THE NATURAL BRINE BATHS AT DROITWICH, FOR WHICH THERE IS NO SUBSTITUTE. LOVELLY HOLIDAY DISTRICT. GOOD HOTELS, &c. Illustrated Booklet Post-free from Baths Manager, J. H. HOLLYER 45 St. Enquiry Office, Droitwich (Worce.). SPECIAL FACILITIES FOR MEDICAL MEN



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EXCLUSIVELY FOR CHILDREN OF WELL-EDUCATED PEOPLE OF VERY LIMITED MEANS.

100 Beds. Boys, ages 4 to 12. Girls, ages 4 to 14. Charge, a minimum of 21s. per week for each Child.

The usual stay is 4 weeks, but some wards are reserved for serious cases requiring special treatment, and for these a lengthened stay may, under some circumstances, be granted, and the age limit raised to 14 for Boys and 16 for Girls.

The Home faces the sea, and is open all the year, being as well adapted for winter as for summer residence.

Particulars can be obtained from the SECRETARY, 115, Victoria St. WESTMINSTER, LONDON, S.W. (formerly of 6, Holborn Viaduct).

The Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.1.—Applications are invited from qualified Male Medical Practitioners for the following post vacant on January 1st, 1921:—Non-resident CASUALTY OFFICER, to work in the Out-patient Department on five days a week at £100 per annum, lunch and tax provided. Application, with copies of testimonials, should be forwarded by December 6th, to the Secretary, from whom any further particulars can be obtained.

West London Hospital, Hammer-smith-road, W. 6 (160 beds).—Wanted: **HOUSE PHYSICIAN** for six months from January 1st next. Salary £250 per annum with board, lodging, and washing allowance. Candidates are required to be registered under the Medical Act; to send four copies of their letters of application and two recent testimonials, so as to reach me not later than first post on Monday, 13th December; to attend the Medical Council on Friday, 17th December, at 4.30 P.M., and prior to that date to call upon such members of the staff as directed; to attend the meeting of the House Committee on Thursday, 23rd December, at 3.30 P.M., when the appointment will be made. H.A. MADGE, Secretary.

Queen Mary's Hospital for the East, End, Stratford, E.15.
Beds: 130. Out-patient attendances: 130,000.
Telephone: Stratford 714.
Patron: Her Majesty The Queen.

HONORARY OPHTHALMIC SURGEON. Applications are invited for the post of Honorary Ophthalmic Surgeon. Candidates must be Fellows of a British College of Surgeons and engaged in consulting practice only. Applications, accompanied by testimonials, should be sent to the undersigned at once. A. W. SCRIVENER, Secretary.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Appointment of **PATHOLOGIST and REGISTRAR**. The Committee of Management invite applications for this post, the holder of which will be required to do the pathological work of the hospital, and draw up the Annual Medical Report. His (or she) will have the control and use of the Laboratory, and will be required to devote at least two hours daily to the work. The remuneration will be at the rate of £200 per annum, and lunch at the Hospital. Applications, with copies only of not more than six testimonials, should be forwarded to the Secretary not later than Thursday, 9th December, 1920. For further particulars apply to ARTHUR WATTS, Secretary.

The Queen's Hospital for Children, Hackney-road, Bethnal Green, E.2.—The Committee invite applications for the post of **HON. RADIOLOGIST** (with charge of Electro-therapeutics). The appointment will be made for one year with eligibility for re-election. An honorarium of £100 a year will be paid, and there will be, in addition, certain payments for School cases. Five attendances a week will be required. Applications, stating qualifications and experience, should be accompanied by copies of not more than five testimonials (of which at least two must have been given expressly for the purpose), and should be sent to the Secretary on or before 4th January. Copies of rules and regulations can be obtained from T. GLESTON-KERR, Secretary. Telephone: 305 Dalston.

Bethlem.—Wanted, Resident House Physician (gentleman, unmarried), recently qualified in Medicine and Surgery. The term of residence is for six months, apartments, complete board, and laundry being provided, and an honorarium at the rate of £25 per quarter (of which at least under the direction of the Physician-Superintendent, to whom no most present him duties can be obtained from the undersigned, and copies of the testimonials, are to be forwarded to the Treasurer. Applications, with testimonials, are to be forwarded to the Secretary, Bridewell Hospital, New Bridge-street, E.C.4, before Dec. 13th, endorsed "Bridewell Hospital, New Bridge-street, E.C.4, December 1920."
Candidates must attend at Bethlem Hospital on Wednesday, Dec. 15th, at 11.30 A.M., when the Sub-committee will make the appointment. JOHN L. WORSFOLD, Clerk, &c.

London County Council.—Applications are invited for appointment as **SIXTH and SEVENTH ASSISTANT MEDICAL OFFICERS** in the London County Mental Hospital Service. Candidates must not be more than thirty-five years of age and must be registered to practice both in Medicine and Surgery in England. Candidates appointed will be pensionable under the Asylum Officers' Superannuation Act, 1903. Preference will be given to candidates who have served, or offered to serve, with H.M. Forces. Salary £330 a year, rising by annual increments of £25 to £400 a year, without emoluments. Also, at present, temporary additions amounting to from £257 to £284 a year. Charges made for board, lodging, &c. (at present two and a half guineas weekly.) Full particulars and conditions of appointment on form of application (on which alone application can be made), obtainable from the Asylum Officer, London County Council, 13, Arundel-street, Strand, W.C.2. Conveying disqualifies. JAMES BIND, Clerk of the London County Council.

St. Mark's Hospital for Cancer, R.O.1.—**HOUSE SURGEON** wanted. Must be doubly qualified. Salary £250 per annum, board, lodging, and washing. Applications, with copies of three recent testimonials, to be forwarded to the Secretary at the Hospital on or before Saturday, the 18th of December.

University College Hospital Medical School.—Applications are invited for a **PART-TIME DEMONSTRATOR of PUBLIC HEALTH, BACTERIOLOGY**. Salary £250 per annum. Preference given to candidates holding the D.P.H. or its equivalent. Applications must reach the Dean of the Medical School by 18th December, 1920.

Assistant Medical Officer (Junior).—Required temporarily at the **CHILDREN'S INFIRMARY**, Cleveland-street, W. 1 (under the Metropolitan Asylums Board). Salary £210-14). Must be experienced in administration of Anesthetics and in Diseases of Ear and Throat. Forms of application may be obtained by sending stamped addressed envelope to the Clerk, Metropolitan Asylums Board, Embankment, London, E.C.4, by whom applications must be received not later than 10 a.m. on Tuesday, 14th December, 1920.

Hospital for Consumption and Diseases of the CHEST, Brompton, S.W.—A vacancy having occurred in the office of **ASSISTANT PHYSICIAN**, the Committee of Management invite applications for the post. Candidates are requested to send in applications and testimonials not later than Saturday, December 18th, 1920. They must be Doctors or Bachelors of Medicine, and Fellows or Members of the Royal College of Physicians of London. Brompton, December, 1920. FREDERICK WOOD, Secretary.

Hospital for Consumption and Diseases of the CHEST, Brompton, S.W.—The Committee of Management invite applications for the post of **Whole-time ASSISTANT in the Department of Pathology**. Candidates who have had previous experience in Bacteriological and Pathological technique, and are fully qualified, Preference will be given to applicants who have had previous experience in Bacteriological and Pathological technique. Further particulars may be obtained at the Hospital. Salary £250 per annum. Application, with testimonials, to be sent in on or before December 18th, 1920. This appointment is distinct from, but may also be held together with, the post of Assistant Physician. Brompton, December, 1920. FREDERICK WOOD, Secretary.

Royal Free Hospital, Gray's Inn, Road, W.C.1.—Applications are invited for the post of **SURGICAL REGISTRAR**. Salary £250 per annum. Intending candidates should apply to the undersigned for full particulars and details of duties. Applications, supported by copies of not more than three testimonials, should be addressed to the Secretary on or before 7th January, 1921. REGINALD H. GARRATT, Secretary.

Royal Free Hospital, Gray's Inn, Road, W.C.1.—Applications are invited for **THREE CHIEF ASSISTANTSHIPS** in the Medical Out-patient Department. Duties: To attend on two afternoons a week (viz., Mondays and Thursdays or Tuesdays and Fridays, or Wednesdays and Saturdays), to assist the Out-patient Physician and, if required, to undertake the Teaching of Students, Honorarium at the rate of 50 guineas per annum, each. The appointments are tenable for a year in the first instance, and candidates must be fully qualified. Applications, stating age, qualifications, and experience, should be sent to the undersigned, before the 11th December, with copies of three recent testimonials. REGINALD H. GARRATT, Secretary.

Hampstead General and North-West LONDON HOSPITAL, Haverstock Hill, N.W.3.—Appointments of **HOUSE PHYSICIAN** and **HOUSE SURGEON**.—Vacancies will occur on January 1st next for a House Physician and a House Surgeon. The salary for each appointment will be at the rate of £150 a year, together with board, residence, &c., and the term will be for a period of six months. Candidates, who must be duly registered Practitioners, should address applications, stating age, experience, &c., together with copies of not more than three testimonials, to the Secretary not later than December 17th.

Hampstead General and North-West LONDON HOSPITAL, Haverstock Hill, N.W.3.—Appointments of **CASUALTY MEDICAL OFFICER and CASUALTY SURGICAL OFFICER**.—Applications are invited from registered Medical Practitioners for the positions of Casualty Medical Officer and Casualty Surgical Officer at the Out-patient Department of the Hospital, Bayham-street, Camden Town. The salaries will be at the rate of £150 per annum, together with board, residence, &c. The appointments will be for a period of six months. Applications, stating age, experience, &c., together with copies of not more than three testimonials, should be addressed to the Secretary not later than December 17th.

West Norfolk and King's Lynn Hospital.—The West Norfolk and King's Lynn Hospital require on January 1st, 1921, **RESIDENT MEDICAL OFFICER** (Lady or Gentleman). Salary £150 per annum, all found. Applications to be addressed to the Secretary, West Norfolk and Lynn Hospital, November 23rd, 1920.

St. Michael's, Broadstairs, Kent.

The Misses G. FLITCHER, R.R.C., CORNELL, and O'RILEY receive INVALIDS for REST, CARE, or CONVALESCENCE. Charming rooms, sheltered gardens, sea views, and excellent cooking. Terms.—Five to fifteen guineas per week. [Phone 195 Broadstairs.]

Telegraphic Address: "Relief, Old Catton."

Telephone "230 Norwich."

NERVOUS & MENTAL AFFECTIONS.

Ladlos only received.

The Grove, Old Catton, Norwich.—

A High-class Home for the Curative Treatment of Nervous Affections. Voluntary Boarders are also received without certificates. Nurses supplied to take charge of patients under the care of their own medical attendants. For full particulars apply to the Misses McILROCK, or to CHAS. A. F. OSBURN, F.R.O.S.E., Medical Superintendent.

PRIVATE PATIENTS.

Three Counties Mental Hospital,

ARKSBY, DROB.

Special accommodation for Paying Patients of both sexes is provided at "East View" and "West View."

Ample provision is made for treatment, occupation, and entertainment of the patients.

The situation is high, rural, and the air bracing.

Terms from 42s. per week, including all necessities except clothing. Further particulars and forms of admission may be obtained on application to the Medical Superintendent.

PRIVATE PATIENTS.

London County Mental Hospital,

CLAYBURY, WOODFORD BRIDGE, ESSLX.

Special accommodation for Male Paying Patients is provided at "THE HALL" adjoining this Mental Hospital. Terms, exclusive of clothing and special luxuries, for patients having a legal settlement in the County of London, 35s. a week; for others, 73s. a week. Full particulars can be obtained on application to the Asylum Officer, London County Council, Fitzalan House, Arundel-street, Strand, London, W.C.2.

All applications will be considered in the order in which they are received.

JAMES BIRD, Clerk of the London County Council.

Grove House, All Stretton, Church Stretton, Shropshire.

A PRIVATE HOME for the Care and Treatment of a limited number of Ladies Mentally Afflicted.

Climate healthy and bracing.

Apply to Dr. McILROCK, Proprietor and Resident Medical Superintendent.

The Committee of the Newport Mental

HOSPITAL, Caerleon, are prepared to receive a limited number of PAYING PATIENTS into the Hospital at moderate charges.

For terms, please apply to the Medical Superintendent.

Doctor can receive Patient or Guest

Into his charming residence near Hyde Park. Drawing-room suite of rooms if desired. Personal observation service and catering good.—Address, No. 412, THE LANCET OFFICE, 423, Strand, W.C.2.

A small Farm and Garden School

has been opened at THE GREY HOUSE, SEVENOAKS, for GIRLS of the Backward, Borderline, or Nervous type.

A variety of indoor occupations taught.

The School is intended for girls of gentle birth, whose parents or guardians find themselves unable to pay the usual high fees. A few LADIES also received.

For terms apply Mrs. PEARCE CLARKE.

FUNCTIONAL DISORDERS OF NERVOUS SYSTEM.

Doctor actively engaged in treating

above can receive a few RESIDENT PATIENTS in his charming Country House, South Coast. Very modern convenience. Home comforts. Large garden. Ample facilities for recreation within easy reach. Terms according to room occupied and amount of active treatment necessary.—Address, No. 475, THE LANCET OFFICE, 423, Strand, W.C.2.

A Resident Patient can be received

by Medical Man's widow in a charming country house, within fifteen miles of Town. Specially suited for nerve, drug, alcoholic, or other cases.—For further details and terms, apply to care of Mr. Percival Turner, 4, Adam-street, Strand, W.C.2.

Resident Patients.—Descriptive List

(Illustrated) of Medical Men in all parts willing to receive Resident Patients sent without charge. Or selection will be made on statement of nature of case and sent to the General Manager, Scholastic, Medical & Medical Assn., Ltd., 22, Orville-street, Trafalgar-square, W.C.2.

THE ASSOCIATION OF CERTIFICATED BLIND MASSEURS

President—

Sir ARTHUR PEARSON, Bart., G.B.E.

A blind civilian student, sitting for the Massage and Swedish Remedial Exercises Examination of the Incorporated Society of Trained Masseuses, came out *First with Distinction* on the Pass List in both examinations.

An eminent Orthopaedic Surgeon in Liverpool has given his unqualified support (acting in the capacity of Hon. Medical Adviser, whenever necessary) to a clinic run in that city by four blinded soldier masseurs, all trained at St. Dunstan's and the National Institute for the Blind.

NINTH LIST OF LOCATIONS OF BLIND MASSEURS AND MASSEUSES

(Provinces):

ST. LEONARDS-ON-SEA.—Mr. F. J. Gibbins, 13, West-bill. (Tel. No. 13, West-bill 212.)

STAFFORD.—Mr. W. Sewell, 147, Newport-road. (Tel. No. 147, Newport-road 212.)

SUTTON.—Mr. A. J. Cohen, 13, Sutton Grove, Cusshall-road. (Tel. No. 13, Sutton 212.)

WEST KIRBY.—Miss B. Sharp, 25, Church-road. (Clinic.)

ALL ENQUIRIES FOR MASSEURS AND MASSEUSES SHOULD BE ADDRESSED TO:—

The Secretary, THE ASSOCIATION OF CERTIFICATED BLIND MASSEURS,

224-6-8, GREAT PORTLAND STREET, W.1.
(Tel. No. 224-6-8.)

Royal Naval Medical Service.

The next Examination of Candidates for the Royal Naval Medical Service will be held at Examination Hall, 8-11, Queen-square, Bloomsbury, W.C., on the 21st January, 1921, and following days.

The number of appointments to be offered is 1425.

The Regulations for Entry and the form to be filled up by Candidates will be supplied on application to the Medical Director General, Admiralty, 1, Lake-buildings, St. James's Park, London, S.W.1. The form, accompanied by the necessary documents, should be returned not later than the 8th January, 1921.

Candidates must not be under twenty-one nor over twenty-eight years of age on the day of the commencement of the Competitive Examination, and must be registered under the Medical Act in force, as qualified to practise Medicine and Surgery in Great Britain and Ireland.

London Temperance Hospital,

Hampton-road, N.W.1.

Applications are invited for the following post, now vacant:—

HOUSE PHYSICIAN. Salary £125 per annum, with board, residence, &c. Appointment for six months (renewable). Candidates must be fully qualified and registered. Applications, with copies of three recent testimonials, should be addressed to the Secretary.

Assistant Medical Officer (Male or Female)

required at SPRINGFIELD MENTAL HOSPITAL, Wandsworth Common, S.W.17, with Diploma of Psychological Medicine, or be prepared to obtain same within two years. Age limit thirty-five years. Salary £225 per annum, including house and emoluments valued at £200 per annum. No married quarters provided. The appointment subject to Asylum Officers Superannuation Act. Applications to be made to the Medical Superintendent.

St. Bartholomew's Hospital.—Office

of ASSISTANT PHYSICIAN.—Notice is hereby given that a meeting of the Election Committee will be held on Monday, the 17th January, 1921, at 4 o'clock in the afternoon, to elect an Assistant Physician to this Hospital.

Candidates, who must be Fellows or Members of the Royal College of Physicians of London, are required to bring thirty-six copies of their applications and testimonials with the undersigned on or before Thursday, the 30th December, 1920.

25th November, 1920.

THOMAS HAYES, Clerk to the Governors.

The Royal Infirmary, Hull.—Wanted

shortly, ASSISTANT HOUSE SURGEON, qualified. Salary £150 per annum, with board-residence. Applications, together with recent testimonials, should be addressed to **BENJ. BROOKS, Secretary.**

Leicestershire and Rutland Mental

HOSPITAL, Narborough, near Leicester.—Wanted at once, TEMPORARY MEDICAL OFFICER (Male). Salary £7 7s. per week, with board, apartments, laundry, and attendance. Applications, with two testimonials, to the Medical Superintendent.

Gateshead County Borough Mental

HOSPITAL, Stanington, Northumberland.—Wanted, ASSISTANT MEDICAL OFFICER. Salary £150, rising £50 per annum to £150. Board, quarters, laundry, and attendance free. Appointment subject to Asylum Officers' Superannuation Act, 1930. Apply to Medical Superintendent.

Ancoats Hospital, Mill-street,

Manchester.—HOUSE SURGEON required (Male). Appointment for six months. Salary £150 per annum. Applications to be forwarded at once to the undersigned, from whom all information may be obtained. By order of the Board.

HERBERT J. DAFFORNE, Secretary.

Taunton and Somerset Hospital,

Taunton (105 beds).—A qualified RESIDENT ASSISTANT HOUSE SURGEON required on or about December 23th. The appointment, which is for six months, is not open to Medical Women. Apply, with copies of not more than three testimonials, and state essential particulars, to **F. J. J. STACEY, Secretary.**

Stockport Infirmary.—Junior

RESIDENT MEDICAL OFFICER required, fully qualified. Salary £220 per annum, with board, residence, and laundry. Applications, with copies of three testimonials, to be addressed to the undersigned. Duties to commence 15th December.

EDWIN J. PEARCE, Secretary-Supt.

Royal Victoria Infirmary, Newcastle-

upon-Tyne.—ANÆSTHETIST (Non-resident), registered in Medicine and Surgery, wanted for Out-patient Department as soon as possible.

Full particulars as to hours of duty, remuneration, &c., can be obtained by application to the House Governor and Secretary. 27th November, 1920. **R. ORR, House Governor & Secretary.**

The Hospital for Sick Children,

Newcastle-upon-Tyne (74 beds).—Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (Male). Salary £200 per annum, with board, residence, and laundry. Duties to commence towards the end of December.

Applications, stating age and copies of testimonials, to be sent to the Secretary, **MR. NIKIL BROWNE**, Star Buildings, 25, Northumberland-street, Newcastle-upon-Tyne.

Bristol General Hospital.—A meeting

of the Election Committee will be held at the Hospital on Wednesday, 15th December, at 1 o'clock P.M., to appoint an HONORARY SURGEON.

Application for the appointment will be made by **Mr. Clifford A. Moore**, Honorary Assistant Surgeon.

Also to appoint an HONORARY ASSISTANT SURGEON.

Application for the appointment will be made by **Mr. Duncan Wood**, Surgical Registrar.

Attention of candidates is drawn to rule 6, Section 7:—"No member of the Honorary Staff shall hold an appointment in any other medical capacity without the sanction of the Committee."

Candidates are requested to send their applications, with copies of testimonials and proof of qualification, to the undersigned on or before Monday, 13th December, from whom further particulars may be obtained. By order of the Committee.

24th November, 1920. **THOMAS W. GREGG, Secretary.**

Township of Leeds.—Infirmary

MATRON.—The Guardians invite applications for the appointment of Matron of their Infirmary and separate Nurses' Home, situate in Beckett-street, Leeds. Candidates must be trained and duly certificated Nurses, and must have had experience as a Matron, Assistant Matron, or Superintendent Nurse in a public General Hospital or Poor-law Infirmary. The Matron will be required to give Lectures to the Nurses and Probationers, and to assist in the Training of the Probationers. Candidates must be either single or widows, and their age must not exceed forty years.

Salary (to include the cost of uniform) £150 per annum and bonus to scale amounting at present to £101 2s., with furnished apartments, ration, and washing. The appointment will be made subject to the approval of the Ministry of Health and to the provisions of the Poor-law Officers' Superannuation Act, 1930, and Amendment Act, 1937.

Forms of application will be sent on receipt of stamped addressed foolscap envelope and must be received by me not later than noon of Wednesday, the 22nd day of December, 1920, endorsed "Matron."

Canvassing the Guardians is strictly prohibited and will disqualify a candidate. Selected candidates will receive due notice to attend.

JAMES H. FORD, Clerk to the Guardians.

Poor-law Office, South Parade, Leeds, 15th November, 1920.

Birmingham and Midland Ear and

THROAT HOSPITAL.—HOUSE SURGEON (non-resident) wanted. Appointment tenable for six months and eligible for re-election. Salary at the rate of £400 per annum. For further particulars apply to the Secretary. Applications and testimonials, with certificates of registration, to be forwarded to the undersigned on or before 15th Dec., 1920. **S. G. GRAY, Secretary.**

The Royal Infirmary (Children's)

HOSPITAL, Sunderland.—JUNIOR RESIDENT MEDICAL OFFICER (Female) required. Candidates must possess double qualifications (registered). Salary £150 per annum, with board, residence, and laundry. There are 66 beds. Applications, stating age, with copies of three recent testimonials, to be received by the undersigned not later than December 14th. **S. O. FRITHS, Secretary.**

Newark Hospital and Dispensary.—

Wanted, a Male RESIDENT HOUSE SURGEON, fully qualified, to commence duties on or about 22nd December, 1920. Ample time for reading. Salary £220 per annum, with board, lodging, and laundry in the Hospital. Applications, stating age, with copies of three recent testimonials, to be sent to the Secretary, **HENRY CHAMPTON**, 27, Kirk Gate, Newark-on-Trent.

West Riding County Asylum,

Wadsley, near Sheffield.—Wanted at once, THIRD ASSISTANT MEDICAL OFFICER, who must be fully qualified and registered. Salary £400, rising £25 annually to £500, with board, residence, &c. The appointment is made subject to the provisions of the Asylums Officers' Superannuation Act, 1930. Applications, with copies of three testimonials, to be sent at once to the Medical Superintendent.

Stroud General Hospital.—House

SURGEON wanted.—Candidates (Women eligible) must be duly qualified and registered. Salary £200, with board, lodging, and washing. The Hospital serves a population of about 40,000 in a manufacturing and agricultural district, and is well equipped (X Ray Apparatus, &c.). V.D. Clinic. Applications, with testimonials, should be sent to the Honorary Secretary, the Hospital, Stroud, on or before December 31st, 1920.

Croydon General Hospital.—A

vacancy occurs on the Honorary Medical Staff of the above Hospital, and candidates for the appointment are requested to forward their applications, together with statements of their qualifications and experience, to me before the 15th December, 1920. The candidate appointed will, in addition to any other duties assigned to him, be expected to attend Medical or Surgical Out-patients as required, and act as Clinical Registrar. Canvassing will disqualify.

GEORGE H. DAVIS, Secretary and Steward.

Prescot Union.—Non-Resident

ASSISTANT MEDICAL OFFICER.—The Guardians invite applications from duly qualified men, under the age of thirty years, for the appointment of Non-resident Assistant Medical Officer at the Institution, Whiston, Prescot (600 beds).

Salary £150 per annum, subject to the provisions of the Poor-law Officers' Superannuation Act, 1895.

The appointment is subject to the approval of the Minister of Health.

Applications, stating age and full particulars of experience and qualifications, accompanied by copies of three recent testimonials, to be sent to me by Friday, the 10th December, 1920.

A. F. MAX, Clerk to the Guardians.

Union Offices, Whiston, Prescot, Nov. 29th, 1920.

County Borough of Burnley.—

ASSISTANT MEDICAL OFFICER OF HEALTH.—Applications are invited for the post of Assistant Medical Officer of Health (Male or Female), who will be chiefly employed as Assistant School Medical Officer.

The possession of the D.P.H. is desirable.

Commencing salary £250 per annum, rising by annual increments of £25 to £500 per annum, plus an economic bonus of at present £30 per annum. This bonus will increase or decrease according to the cost of living.

The appointment is subject to three months' notice by one party to the other.

Forms of application, obtainable from the Medical Officer of Health, St. James-street, Burnley, together with copies of three recent testimonials, should be forwarded to him on or before 29th December, 1920.

J. D. RITCHIE, Town Clerk.

Town Hall, Burnley, 29th Nov., 1920.

Manchester Royal Infirmary.—

MEDICAL OFFICER for the MASSAGE and ELECTROLYTICAL DEPARTMENT.—The Board of Management invite applications from Registered Medical Practitioners for the above position. The duties are to supervise the work of the Department under the supervision of the Honorary Medical Officer in charge of the X Ray and Electrical Departments, and to undertake teaching in Medical Electricity to Medical Students, and candidates for the Electrical Examination of the Chartered Society. The appointment (non-resident) is for part time—by arrangement, tenable for twelve months (renewable). Salary at the rate of £150 per annum. To commence duty on Monday, 3rd January, 1921. Applications, accompanied by twelve copies of three recent testimonials, to be sent to the undersigned by Wednesday, 22nd December, 1920. By order.

FRANK G. HAZELL, General Superintendent and Secretary.

Royal United Hospital, Bath.

Wanted, a HOUSE SURGEON. Candidates must be duly registered Medical Practitioners.

Apply, with recent testimonials, to

J. M. SHEPPARD, F.C.I.S., Secretary.

Royal Isle of Wight County Hospital.

Wanted, immediately RESIDENT HOUSE SURGEON (Male), doubly qualified and registered, must be good Anatomist, State age and nationality. Salary at the rate of £250 yearly. Apply, enclosing copies of testimonials, to Secretary before December 5th.

City of Bradford.—Applications are

invited from fully qualified Medical Practitioners for the post of ASSISTANT BACTERIOLOGIST. Salary £500 a year, payable monthly. Candidates should have had some special training in Bacteriological and Serological Work. A statement of duties and form of application may be had from the undersigned. Applications should be returned before the 15th December, 1920.

Town Hall, Bradford. JOHN J. BUCHAN, Medical Officer of Health.

Borough of Plymouth.—Applications

are invited from registered Medical Practitioners (either sex) for the whole time appointment of ASSISTANT MEDICAL OFFICER OF HEALTH, at a commencing salary of £500, rising by annual increments of £25 to a maximum of £530 per annum.

Maternity and Child Welfare work constitute the principal duties of the office, but candidates must be prepared to carry out any other duties assigned by the Medical Officer of Health, and must have had experience in the treatment of Children's Diseases. The possession of a Diploma in Public Health will be a recommendation.

Forms of application may be obtained from the undersigned, and must be returned, with copies of three recent testimonials, not later than 10th December, 1920.

O. HALL, Medical Officer of Health.

Town Hall, Stonehouse, Plymouth.

Hull and Goole Port Sanitary

AUTHORITY.—Appointment of ASSISTANT MEDICAL OFFICER OF HEALTH.—The Hull and Goole Port Sanitary Authority, invite applications for the appointment of Assistant Medical Officer of Health to carry out, under the direction and supervision of the Medical Officer of Health, the routine work of Port Sanitary Administration and the Medical Inspection of Aliens, and such other duties as may be called upon to perform.

Salary £75 per annum. The person appointed will be required to devote the whole of his time to the duties of the office.

Applications, stating age, qualifications, experience, and present occupation, to be sent to me, with copies of three testimonials of recent date, on or before Saturday, the 11th December, marked "Assistant Medical Officer." JOHN DAVIS, Clerk to the Authority, Guildhall, Hull, 2nd November, 1920.

Kent County Council.—Lenham

SANATORIUM.—Applications are invited for the post of MEDICAL SUPERINTENDENT of this Institution, which has 140 beds.

Applicants must be registered Medical Practitioners, must devote their whole time to the duties of the office, and must have had experience in tubercular and in hospital administration.

The successful applicant will work under the administrative control of the County Medical Officer. Salary £850 (including present war bonus), with unfurnished residence, fuel, light, and water.

Applications, stating age, experience in full; if married, family; with copies of three testimonials, to be sent to the undersigned not later than 9th December, 1920.

Application forms are not provided and original testimonials must not be sent.

ALFRED GREENWOOD, M.D.

County Medical Officer and Chief Tuberculosis Officer.

County Health Department, Services House, Maidstone.

22nd November, 1920.

Worcestershire County Council.—

ASSISTANT COUNTY MEDICAL OFFICER.—The above Council are about to appoint an Assistant County Medical Officer, and applications are invited for the position.

The duties will be: (1) To undertake the Medical Inspection and Treatment of School Children; (2) to act as Assistant Tuberculosis Officer; (3) to supervise Maternity and Child Welfare Work; and (4) to undertake the examination of Mental Patients.

Applicants, either male or female, must be registered Medical Practitioners of suitable experience and qualifications (Diploma in Public Health desirable) and be between twenty-five and forty-five years of age. The person appointed will be required to reside in the district assigned to him or her by the County Council, to devote the whole of his or her time to the work, and will be subject to the directions of the County Medical Officer.

The salary will be £500, rising to £550 by two equal annual instalments, in addition to allowances for travelling and personal expenses. The engagement will be subject to three months' notice on either side.

Applications (on forms to be obtained of the County Medical Officer, accompanied by not more than three recent testimonials, must be received by 12 noon on Wednesday, 8th December, 1920, addressed to the County Medical Officer, 21, Foregate-street, Worcester, and endorsed "Assistant County Medical Officer."

Enclosing disqualifications, and neither the names of the Members of the County Council nor of the Committee will be supplied.

C. H. RIND, Clerk of the County Council.

Shirehall, Worcester, 22nd November, 1920.

Monmouthshire Asylum, Aber-

gavenny.—Wanted, a JUNIOR ASSISTANT MEDICAL OFFICER, Male, single, registered. Previous Asylum experience not necessary. Salary £450 per annum, with £50 yearly increments to £500, with bonus to the provisions of the Asylum Officers' Superannuation Act, 1904, with board, furnished apartments, washing, and attendance.

Applications, stating age, qualification, &c., with not more than three recent testimonials, to be sent to the Medical Superintendent.

Bedford County Hospital.—Wanted

at once, for a term of not less than six months, a HOUSE SURGEON and ASSISTANT HOUSE SURGEON, unmarried, Male, duly qualified to act in Medicine and Surgery. Salaries £150 and £100 respectively, with board, lodging, and laundry. Applications, stating age, qualifications, medical school, and previous appointments, together with three recent testimonials, must be sent to

November 8th, 1920.

BLAUGHAM WADSWORTH, Secretary.

Ingham Infirmary and South Shields.

WESTON DISPENSARY.—Wanted, SENIOR and JUNIOR HOUSE SURGEONS. Salaries £225 and £175 per annum respectively, with residence, board, and washing. No out-visiting. Candidates must hold registered qualifications in Medicine and Surgery. The appointment will be terminable by one month's notice. Applications, stating age, qualifications, and accompanied by copies (which will not be returned) of recent testimonials, to be sent to the undersigned, from whom further particulars may be obtained.

JOHN POTTER, Secretary.

Nottingham Children's Hospital.—

Wanted, a RESIDENT HOUSE SURGEON (Woman). The salary will be at the rate of £230, with apartments, board, and washing. The appointment will be for six months, and the duties are to commence about 21st December, 1920. Applications, accompanied by testimonials, stating qualifications and experience, to be sent to the Honorary Secretary, Mr. F. H. PEARSON, King John Chambers, Brimsley Gate, Nottingham, before 10th December, 1920. Selected candidates will be required to attend at the Hospital for a personal interview.

Addenbrooke's Hospital, Cambridge.

Applications are invited for the posts of HOUSE SURGEON and HOUSE PHYSICIAN.

The appointments will be for six months from January 1st, 1921. Salary £130 per annum each Officer, with board, residence, and laundry.

Candidates, who must be duly registered, are requested to forward their applications, stating age, qualifications, &c., together with copies of not more than four recent testimonials, to the undersigned on or before Wednesday, December 8th, 1920.

November 25th, 1920.

W. H. IRVING, Secretary-Superintendent.

Royal Devon and Exeter Hospital.

Wanted, Applications are invited for the post of SENIOR HOUSE SURGEON (Male) at this Hospital. The appointment is for twelve months, but candidates are eligible for re-election.

Salary at rate of £250 per annum, with board, apartments, and washing.

Applications, giving full details as to age, qualifications, together with certificate of registration, and copies of three recent testimonials, should be sent to the undersigned, from whom all particulars can be obtained, on or before Wednesday, 8th December, 1920.

By order of the Committee.

Dated 19th November, 1920.

S. S. COLE, Secretary.

The Gloucestershire Royal Infirmary

AND EYE INSTITUTION (140 Beds).—Applications are invited for the post of ASSISTANT HOUSE SURGEON (Male).

The appointment for six months, which may be extended for similar periods by re-election from time to time.

Salary at the rate of £150 per annum, with board, residence, and laundry.

Candidates, who must be fully qualified, should send in their applications, stating age and nationality, accompanied by not less than three testimonials of recent date to the undersigned.

Gloucester, November 11th, 1920.

G. HICKMAN, Secretary.

Cumberland County Council.—Assist-

ANT COUNTY MEDICAL OFFICER.—Applications are invited for the above post from duly qualified Men or Women holding a Diploma in Public Health. The work will include the Medical Inspection and Treatment of School Children and matters arising under the Council's Tuberculosis and Maternity and Child Welfare Schemes.

Salary £200 to £300, by £50 annual increments, with travelling expenses.

Previous experience will be taken into account in fixing the minimum salary.

Forms of application, together with terms of the appointment, can be obtained from the County Medical Officer of Health, 43, Warwick-road, Carlisle.

Applications, together with copies of three recent testimonials, must reach the County Medical Officer not later than Saturday, the 11th December, 1920.

Conveying is strictly prohibited.

C. G. COOPER, F.R.C.S.D., Clerk to the Council.

The Courts, Carlisle, Nov. 22nd, 1920.

University of Cape Town.

CHAIR OF BIO-CHEMISTRY. (Physiological and Pathological Chemistry.)

Applications are hereby invited for the Chair of Bio-Chemistry in the Faculty of Medicine at the University of Cape Town.

The salary is £200 per annum, rising by biennial increments of £50 per annum to £1100 per annum. There is a temporary war bonus according to Government scale (at present £125 for a married man).

The Professor must become a member of the University Teachers' Superannuation Fund.

Appointments are generally restricted to candidates under thirty-five years of age, but in the case of a candidate who has been engaged in teaching or in research in South Africa this restriction need not apply.

Applications, together with copies of testimonials (all in duplicate), should be sent to the Secretary, Office of the High Commissioner for the Union of South Africa, 32, Victoria-street, Westminster, S.W., from whom further particulars may be obtained.

Applications must reach the Secretary, Office of the High Commissioner, not later than 31st January, 1921.

Medical Officer with experience in

Tropical Medicine required immediately for Central Africa by large Commercial Company. Knowledge of French essential.—Apply with full particulars regarding age, experience, and qualifications to No. 480, THE LANCET Office, 423, Strand, W.C.2.

Cadet Training Ship, "St. George."

MEDICAL OFFICER required for three months' voyage to Las Palmas.—For particulars of duties and remuneration apply to the Managers, Devitt & Moore, 12, Fenchurch Buildings, E.C.3.

Ship's Surgeon. — Messrs. Elder

Dempster and Co., Limited, have a few vacancies for Surgeons in their West African Service. Pay £20 per month. Fees allowed for attendance on passengers. Length of voyage varies from six to ten weeks, according to particular route.—Apply, Medical Superintendent, Messrs. Elder Dempster and Co., Limited, Colonial House, Liverpool.

An in-door Assistant required immediately

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Telegrams: "Instruments, London." Telephone: 5240 City (3 lines).

M.B., B.Ch., B.A.O., young, capable,

sober, and energetic, desires ASSISTANTSHIP or Branch. Experienced in Panel and Private Practice. Protestant. Excellent references.—Address, No. 489, THE LANCET Office, 423, Strand, W.C.2.

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Manufacturers of Pharmaceutical Glass Goods, require an active Wholesale Firm to act as Sole Selling AGENTS, either on own account, or on commission basis. Applications only considered from first-class firms. Would also consider applications from Exporters for Sole Agents for Colonies.

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Hardworking, willing, thoroughly reliable. London references. G. W., 53, Crosby House, Stepney, E.1.

Lady Dispenser-Bookkeeper (able to

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Lady Dispenser Attendant, Non-

residential, requires Position with Doctor. South London preferred.—Apply, Women's Legion, 417, Oxford street, W. (opposite Selfridge's).

Lady Dispenser, qualified Hall.

Experienced. Disengaged. Moderate salary.—A. P., G. Winchester-street, S.W.1.

Ex-Officer's Daughter. Hall an

Bacteriologic certificates, desires post as DISPENSER, Doctor Institution, or Laboratory.—Box 2472, Willings, 125, Strand, W.C.2.

Ex-V.A.D. Nurse, Dispenser (Hall

Secretarial work, Surgery Assistance, or other light duties desires Post anywhere England, Scotland, or Abroad, for modern salary.—Address, No. 492, THE LANCET Office, 423, Strand, W.C.2.

Competent Driver-Mechanic (Lady)

eight years' experience driving and running repairs, any kind of car. Three years overseas. Salary £3. Disengaged now.—Apply B., Abercorn-mansions, Abercorn-place, Malda Vale.

Wanted by M.B., a Middle- an

Working-class PRACTICE with about 1500 panel, in London or Suburb. Now free.—Apply, Blundell & Co., Walter House, 418-41 Strand, W.C.2.

Wanted, Country Town Medical

PRACTICE, with garden and paddock, in Kent, Sussex, Hampshire.—Address, No. 410, THE LANCET Office, 423, Strand, W.C.

Wanted, Practice not less than £1000

Seaside Resort preferred. School for girls essential. Capital available.—Address, No. 493, THE LANCET Office, 423, Strand, W.C.2.

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TICE or PARTNERSHIP in healthy place in Midlands or South, with scope for Surgery. Income £1200 to £1500.—Apply Blundell & Co., Walter House, 418-422, Strand, W.C.2.

Required, a Lock-up Surgery in

London. Can settle at once.—Send full details in confidence to Dr. D., care of Arnold & Sons, Transfer Dept., 6, Giltspur-street London, E.C.1 (opposite St. Bartholomew's Hospital).

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or without panel, in pleasant residential district. London or within fifty miles. Receipts from £1000 per annum upwards. Good house.—Apply, Peacock & Hadley, 19, Craven-street, Strand, W.C.2. (No charge unless sale effected).

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Messrs. ARNOLD & SONS, Surgical Instrument Makers (Established 160 years), are in urgent need of Practices or Partnerships for several of their Clients who are anxious to settle down at once.—Send full particulars, in confidence, Arnold & Sons Transfer Dept., 6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hospital).

M.B., D.P.H., wants Panel and

Private PRACTICE or PARTNERSHIP with view to free session in London or suburb. Ex-Captain R.A.M.C., H.S., and R.M.O. qualified seven years, experienced; capital available; ready to negotiate at once.—Address, No. 476, THE LANCET Office, 423, Strand W.C.2.

Required, an unopposed Country

PRACTICE within sixty miles of London. Receipts £750 to £1000 per annum. Good house, Ac. essential.—Send full details in confidence to Dr. M., care of Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hospital).

Required at once, Cash and Panel

PRACTICE in London or Suburbs. Can pay £1000 down and the balance by instalments. Open to negotiate at once.—Send full details in confidence to Dr. E., care of Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hospital).

N of England.—A Partner required

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Excellent opportunity for a young

unmarried man, in a favorite North-West Seaside resort. SHARE about £200 is offered for £1350. Capable of much extension Accommodation in Partner's house available until suitable residence obtained. No club, panel, or dispensary.—Address, No. 478, THE LANCET Office, 423, Strand, W.C.2.

Partnership.—£3000 to £4000

year.—A Partnership offered in a Home near London, returning a net income of £2750 to £1300 for Half Share. Full details will be given at personal interview. Excellent opportunity.—Quote Radio 1232. Arnold & Sons, Transfer Dept., 6, Giltspur-street, London, E.C.1 (opposite St. Bartholomew's Hospital).

Nottingham City Asylum.—Second
ASSISTANT MEDICAL OFFICER wanted. Male, unmarried. Salary £400 per annum, with board, apartments, and laundry, subject to the provisions of the Asylum Officers' Superannuation Act. Previous experience in lunacy work not essential. Apply, stating age and qualifications, and enclosing copies of recent testimonials, to Medical Superintendent.

Ministry of Pensions.

Vacancy for JUNIOR MEDICAL OFFICER at EPILEPTIC COLONY, Maghull, near Liverpool. Young Medical Officer with some experience of Epilepsy. £400 per annum, resident. Preference given to applicants with war service. Address applications to Secretary, M.S.I.B., Ministry of Pensions, 6, Millbank, S.W.1.

Almoner required, East Sussex

HOSPITAL, Hastings. Salary £200 per annum. Applications, with testimonials, should be sent to Secretary by December 8th.

Manchester Royal Infirmary.

BARNES CONVALESCENT HOSPITAL, Cheadle (136 beds).

RESIDENT MEDICAL OFFICER, to commence duty on 1st January, 1921.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, which is tenable for twelve months, subject to the provision of the By-laws as to notice. Remuneration is at the rate of £200 per annum, with board and residence. Applicants must state age, and send twelve copies of their application and testimonials to the undersigned by Thursday, 16th December, 1920. **FRANK G. HAZELL, Gen. Supt. & Secretary.**

Manchester Royal Infirmary.

ACCIDENT ROOM HOUSE SURGEON,

to commence duty on 1st January, 1921.

The Board of Management of the Manchester Royal Infirmary invite applications for the above appointment, which is tenable for twelve months, subject to the provision of the By-laws as to notice. Remuneration is at the rate of £200 per annum, with board and residence. Applicants must state age, and send twelve copies of their application and testimonials to the undersigned by Thursday, 16th December, 1920. **FRANK G. HAZELL, Gen. Supt. & Secretary.**

Manchester Royal Infirmary.

HOUSE SURGEONS.

The Medical Board of the Manchester Royal Infirmary invite applications for the above appointment. Candidates must possess a legal qualification, and be registered.

Successful candidates will be provided with board, residence, and allowance for washing during their term of office, and receive a salary of £50 for the first six months, and £100 for the second six months. Applications must be sent in, addressed to the Chairman of the Medical Board, at once. **FRANK G. HAZELL, Gen. Supt. & Secretary.**

Jessop Hospital for Women, Sheffield.

GYNÆCOLOGICAL AND MATERNITY DEPARTMENTS (92 beds).

SENIOR RESIDENT OFFICER.

Applications are invited for the post of Senior Resident Officer. Salary £250 per annum, with board, residence and laundry. Applicants, stating age and experience, with copies of recent testimonials, should be forwarded to the undersigned, who will supply any further information.

JUNIOR HOUSE SURGEON.

A Junior House Surgeon is required. Salary £100 per annum, with board, residence and laundry. Duties to commence January 1st, 1921. Applications, stating age, with copies of recent testimonials, should be forwarded to the undersigned at once.

W. H. BOOTH, Secretary.

Wigan Education Committee.

ASSISTANT SCHOOL MEDICAL OFFICER.—Applications are invited for the post of Assistant School Medical Officer from duly qualified Medical Practitioners (Male or Female). Candidates must hold a qualification in Public Health or undertake to obtain same within one year.

Salary £200 per annum, inclusive of bonus.

Experience in the treatment of minor ailments and Refractive work will be a recommendation.

Applications, together with three recent testimonials, to be sent to reach me not later than Saturday, 11th December, 1920.

List of duties can be obtained on application.

GEO. H. BUCKLER, Director of Education.

Education Office, King-street, Wigan, 20th November, 1920.

The Northern Infirmary, Inverness

(100 beds).—Wanted for end of December, **HOUSE SURGEON**, fully qualified and registered. Male; unmarried. Salary £150 per annum, with board, residence, and laundry. Applications, stating age, medical echo, qualification, and experience, with copies of recent testimonials, to be sent to Mr. DUNCAN SHAW, W.S., Inverness, Hon. Secretary to the Institution.

2, Church-street, Inverness.

Madras and Southern Mahratta

RAILWAY COMPANY, LIMITED.—The Directors of the above named Company invite applications for the post of **DISTRICT MEDICAL OFFICER** for service in India, on a three years' agreement in the first instance, renewable by mutual consent, with a free passage out and home. A free passage to England is also granted if sick leave has to be taken. If the exigencies of the service permit, one month's leave on full pay is allowed annually, cumulative up to three months, and sick leave on half pay. If the agreement is extended, furlough may be taken, subject to the exigencies of the service, on half pay after seven years' service, while in case of emergency leave on urgent private affairs is allowed on half pay to the extent of six months in total service. There is no pension, but the employee contributes one month's pay annually to the Company's Provident Fund, an equal amount being given as bonus by the Company. Commencing salary from Rs. 750 per mensem, according to age and qualifications, rising by annual increments, to a maximum of Rs. 1100, with prospects of further promotion.

The qualifications required are as follows:—

(1) Must be a European with British qualifications to practise Medicine, Surgery, and Midwifery, and preference will be given to candidates who have held the appointment of House Surgeon at a large hospital.

(2) Preference will also be given to a candidate who has studied Diseases of the Eye for three to six months, and holds a diploma or degree in Public Health or Tropical Medicine and Hygiene.

(3) If a suitable candidate with Public Health qualifications is not available, an appointment may be made subject to there being acquired either before proceeding to joint duty in India, or later if the original agreement is renewed.

Preference will be given to a gentleman who has served with I.M. Forces during the War.

The successful candidate will be required to pass a medical examination by the Company's Physician.

All applications should be lodged at the Company's Office, on or before the 3rd January, 1921. **H. BONHAM CARTER, Secretary.** 25, Buckingham Palace-road, Westminster, S.W.1.

COLONIAL SERVICE.

Medical Officers are required for the

WEST AFRICAN MEDICAL STAFF, and also for the **GOVERNMENT SERVITOR IN MALAYA, the EAST AFRICAN PROTECTORATES, the WEST INDIES** (including **BRITISH GUIANA**), **FIJI**, and the **WESTERN PACIFIC**, &c., &c.

The conditions of service differ widely in the various Colonies and Protectorates, but in general the appointments are permanent and pensionable (after a period of probation), and free passages are provided to the place of appointment.

Particulars of vacancies and forms of application can be obtained from the

Assistant Private Secretary (Appointments),

Colonial Office,

Downing Street,

London, S.W.1.

Wanted, Medical Officer for group

of Estates in Malay Peninsula to attend European and Native Staffs and Labour Forces. Experience as H.S. or H.P. a recommendation. Also training in Public Health, Tropical Diseases, or Anti-malarial work. Salary according to qualifications. Bungalow accommodation and motor-car supplied. motor-car, and

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